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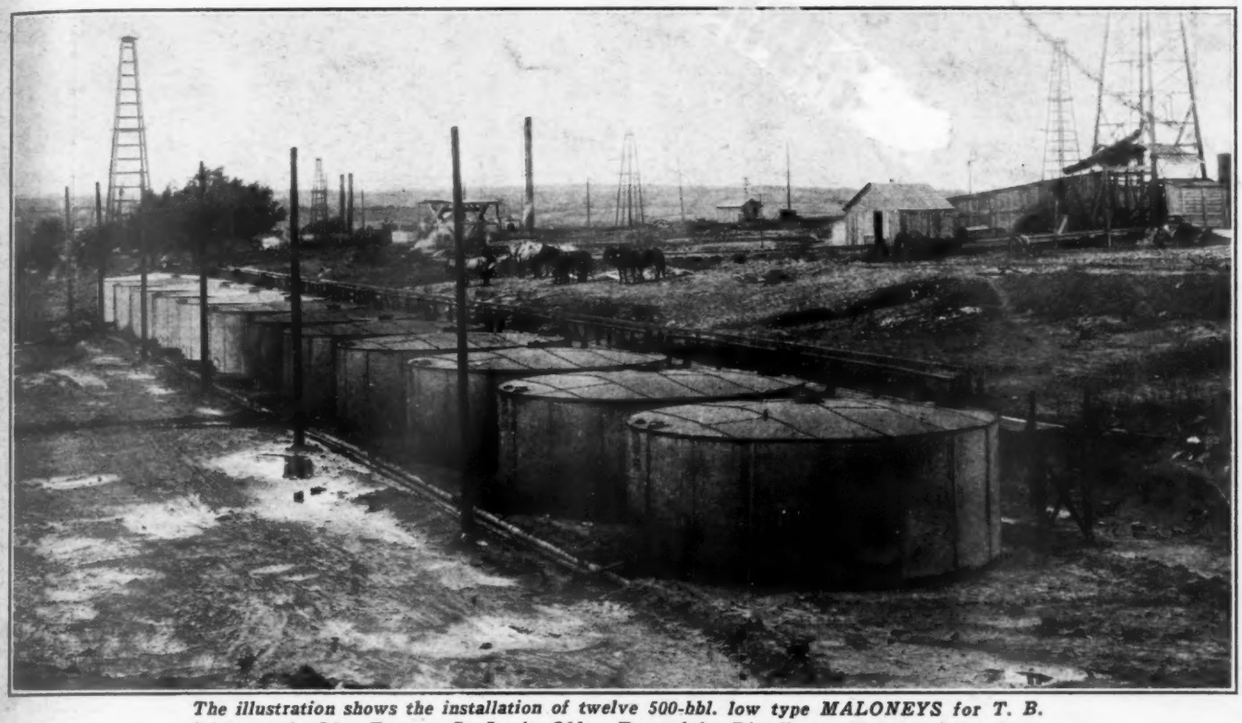
The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

Published Every Thursday TULSA, OKLAHOMA, MARCH 14, 1929 $6.00 a Year



The illustration shows the installation of twelve 500-bbl. low type MALONEYS for T. B. Slick, on the Linn Farm at St. Louis, Okla. Erected by Distributor, Maloney Sales Corp.

The First Line of Defense . . . . . against Evaporation and Corrosion

MALONEY Bolted Steel Tanks are remarkable both for tightness and durability. Our patented "crimp" seams and joints, our superior rubber gasketing and our Gaso cement insure vapor-tightness. The rust-resisting Keystone Copper Steel used in all MALONEYS insures maximum service. MALONEYS on the lease are the producer's first line of defense against the inroads of evaporation and corrosion.

All seams in MALONEYS are reinforced with rigid steel channels. Special bolts of 90,000 pounds tensile strength are used, regular bolts only 60,000 lbs. Cleaning out plates are large and set flush with bottoms. Paint is Maloney Special Pearl Gray Paint. Valves and thief-hatches are the best on the market.

"Alone in Quality"

MADE OF KEYSTONE COPPER STEEL

MALONEY TANK MFG. COMPANY

Tulsa, Okla., U. S. A.

MADE OF KEYSTONE COPPER STEEL

Distributors at all Principal Petroleum Points

Howell Aluminum "4-in-1" Vacuum Pressure Valve and Thief Hatch—the BEST and LATEST Deck Equipment—POSITIVE Safety

Sizes: 12 to 10,000 Barrels

Packed in Steel-Bound Crates for Export

MALONEY

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

Advertisers' Index on Page 25 Table of Contents on Page 26

Made especially for the petroleum industry

White paint that stays WHITE—Colored paints that do not fade

HERE'S a paint that sulphur fumes and aqueous vapors won't darken. Resists dirt accumulations. By staying clean and brilliant for a longer time, it curtails evaporation losses to a minimum. Can be applied under weather conditions ordinarily regarded as impossible: does not crawl on cold surfaces. And yet it is adaptable for a wide variety of surfaces—wood, plaster, concrete . . . and for systems applicable to metal.

Petro Paint is different from ordinary paint because it was designed especially for the petroleum industry by du Pont engineers. Specially selected pigments, special vehicles, special dryers, carefully balanced against each other to bring out the best advantages of each. The result is a finish that does not chalk excessively nor mildew; neither does it crack or peel. Hides better, brushes easier, and wears longer. Leaves a good surface for repainting. In fourteen colors, including black and white. Other colors made when necessary.

Du Pont finishes for every need of the petroleum industry

Petro Paint, specially created by du Pont for the petroleum industry, A. C. E. (Asphalt Chromate Emulsion), aluminum vehicles, tank car finishes, station paints, a variety of primers and other special products—these are some of the scientific products du Pont chemists offer you for your various finishing needs in production, transportation or marketing division. Call on du Pont engineers to study your specific problems.

Our bulletin No. 4 on Petro Paint will be gladly sent on request. E. I. du Pont de Nemours & Co., Inc., Petroleum Sales Department, Parlin, N. J.

DU PONT

REG. U.S. PAT. OFF.

PETRO PAINT

125 LBS.

Some Advantages of the Walworth DOUBLE DISC Gate Valve Line

1. Discs accurately guided and forced squarely against the seats insure tight closing.
2. Discs instantly released from the seats by first turn of the stem.
3. Internal construction insures alignment of the discs; no canting to one side in any position.
4. Valves work equally well with pressure on either side of the disc.
5. No dragging faces of discs on seats in either closing or opening.
6. Can be repacked under pressure with valve fully opened.

They Set the Standard

700 LBS. TEST

1000 LBS. TEST

1600 LBS. TEST

The "Big 3" of the Walworth Iron Body gate valve line are standard equipment for cold oil, water or gas at pressures ranging from 400 to 800 pounds. The 125-pound valve fits in for any number of general uses wherever oil is handled. All these valves are available in either non-rising stem or outside screw and yoke design. Send for your copy of the Walworth Oil Catalog.

WALWORTH

Walworth Company, General Sales Offices: 51 East 42nd St., New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa., and Attalla, Ala.

Distributors in Principal Cities of the World

Walworth Company, Limited, 10 Cathcart St., Montreal, P. Q.
Walworth International Co., New York, Foreign Representative

and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 per year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at t he post office at Tulsa, Okla., under the Act of March 3, 1879

Unified Responsibility

The Hope Company is the one organization serving the natural gas and oil industry which is ready and qualified to assume entire responsibility for a pipe line enterprise "from well to meter." It is not only ready, but it has repeatedly done so—to the satisfaction of all concerned.

More than this, the Company is ready also to undertake field surveys, market analyses, and aid in financing and organization—as it has repeatedly done in the past.

HOPE

ENGINEERS CONTRACTORS

HOPE ENGINEERING COMPANY

DESIGNERS MANUFACTURERS

MOUNT VERNON, OHIO, U.S.A.

NEW YORK, N.Y. DALLAS, TEX. TULSA, OKLA. CASPER, WYO. HOUSTON, TEX. SHREVEPORT, LA. LOS ANGELES, CAL.

Sublimed Litharge goes into solution FASTER—

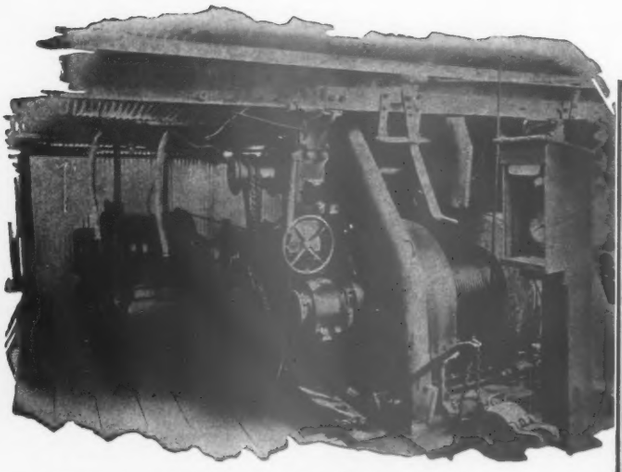
Because of its extremely small particle size—ten times the specific surface of regular Litharge—Eagle Sublimed Litharge goes into solution faster in caustic soda solutions.

This increased rate of solubility of Sublimed Litharge results in a considerable saving of time and labor. Also, Sublimed Litharge stays in suspension, keeping the air lines of the agitator free. Detailed information and a free sample will be sent on request, without obligation. Same price as our regular Refiner's Litharge. *The Eagle-Picher Lead Company, Chicago, Joplin, Cincinnati.*

REG. U.S. PAT. OFF.

EAGLE *Sublimed* LITHARGE

MADE BY THE MAKERS OF EAGLE OIL REFINER'S LITHARGE



Electric rotary installation on lease in Dominquez, California

Type CR7876-C1 magnetic control panel for rotary drive

After you've spudded in— then what?

After you've spudded in—then the big job is to drive the fish-tail into pay sand in the shortest possible time at the lowest possible cost.

And that's where G-E Motorized Power comes in.

With the new G-E heavy-duty magnetic control, General Electric has greatly improved the electric drive. Just turn the wheel and it automatically governs the accelerating speed which may be readily adjusted to any drilling condition.

You know what that means—no limitations as with manual control, no great strain on the rig, no delays, maximum acceleration with minimum power input, in short, more footage per tour.

Economy? Power consumed averages less than $20 per day.

With your rig equipped with this type of control, there'll be no question about what will happen after you've spudded in. You'll reach pay sand in the shortest possible time at the lowest possible cost.

General Electric supplies complete electric equipment to the oil industry. With warehouse facilities close to your operations, G.E. readily furnishes motors, controllers, transformers, arresters and other protective devices, capacitors for power-factor improvement, switching equipment, etc.

G-E oil field specialists at:

Los Angeles—5201 Santa Fe Ave.

San Francisco—235 Montgomery St.

Resident Oil Field Specialist, C. F. Forsberg—Box 772, Bakersfield, Calif.

Apply the proper G-E motor and the correct G-E controller to a specific task, following the recommendations of G-E specialists in electric drive, and you have G-E Motorized Power.

Motorized Power
—fitted to every need

205-226

GENERAL ELECTRIC

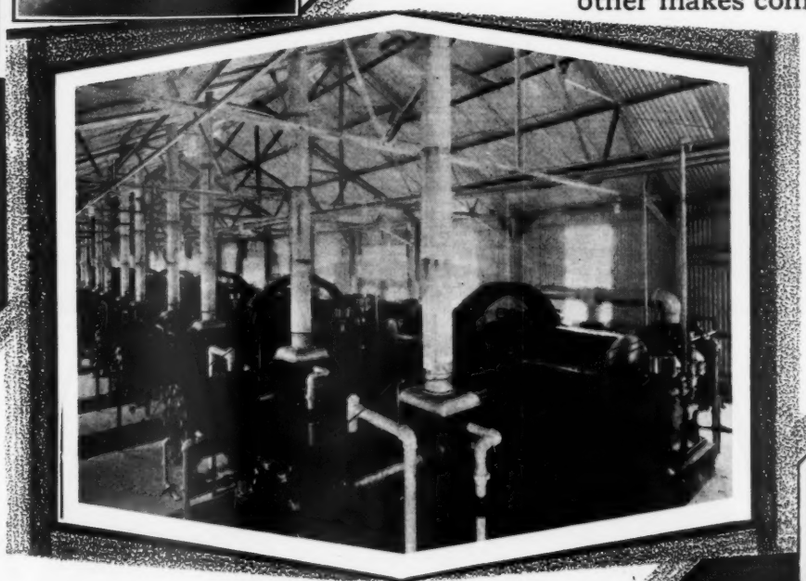
GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN PRINCIPAL CITIES

McCord LUBRICATORS

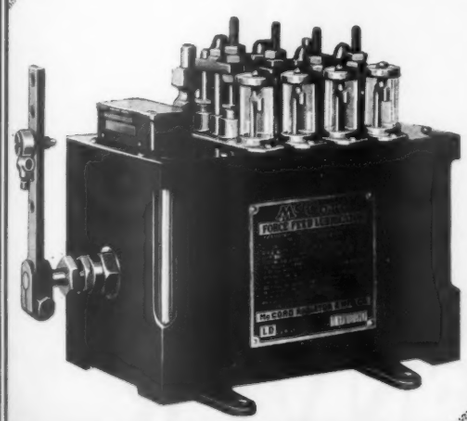
STANDARD OF THE OIL FIELD

There is no denying the best recommendation any product can offer is the approval of its users. More McCord force feed lubricators are in use in the oil fields, giving satisfactory service than all other makes combined.

DISTRIBUTED BY
National Supply Co.
ALL BRANCHES



21—165 H.P. Units—
McCord Equipped



McCord Radiator & Mfg. Co.
LUBRICATOR DIVISION
Detroit, Mich.

A Bigger Pump to Handle Mud

at Smaller Cost

To handle rotary mud at smaller cost, Gardner-Denver introduced a bigger booster pump. This 14½ x 7¼ x 20 GARDNER Super Booster performs efficiently under the high pressures now used. Brute size, correct design and fine materials insure dependable service.

GARDNER-DENVER COMPANY
QUINCY, ILL.

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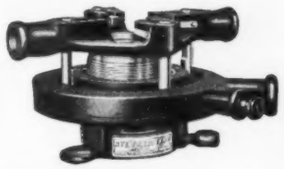
C. F. Camp Co.	Tulsa
Emsco Derrick & Equipment Co.	6811 So. Alameda St., Los Angeles
Haywood-Williamson	Shreveport and El Dorado
International Supply Co.	Stores In All Principal Mid Continent Fields
Norvell-Wilder Hardware Co.	Beaumont, Houston and Fort Worth
The Republic Supply Co. of California	Stores In All Principal California Oil Fields

GARDNER-DENVER

The rugged construction and few working parts account for the simplicity and durability of these Nye Receding models. They do the work easily and efficiently.

No. 1 Nye Receding Pipe Threader, complete .....$9.60 net
West of Rocky Mountains $10.80



The No. 1A is the same as the No. 1 except that it is equipped with a ratchet for work where space is restricted.

No. 1A Nye Receding Pipe Threader, complete .....$12.00 net
West of Rocky Mountains $13.50

A LETTER FROM HARRY G. NYE

Nye (Toledo Type) Chasers Fit Nos. 1, 1A and 2 Nye (Toledo Type) Stocks

Each set is guaranteed in every particular. Will cut much easier than other similar dies.

No. 1, 1" to 1½" .....$ .75 per set net
No. 1, 2" ..... 1.25 per set net
No. 2, 2½" to 4" ..... 3.60 per set net

TO THE OIL MEN OF THE U. S. A.

Fellow Citizens:

Once there was a young man who wanted a chance to work up, and he got his wish right away. He hired out to a paper-hanger, who gave him a job hanging a ceiling. He hung so many ceilings that he got so he had to put his shoes on over his head. The most prominent feature of his face was his Adam's apple. From there his head sloped back like the roof of a woodshed. This gave him a very peculiar appearance, especially after a barber carelessly removed both of his eyebrows while shaving the back of his neck.

And yet he led a rather happy life. Things with that young man were always looking up, because that was the only way he *could* look. Short skirts meant nothing to him. I speak about this young man, however, for a noble purpose. When you see a man going around with his chin where his forehead ought to be, and his forehead where his carbuncle ought to be, do not think he is proud. He may be a paper-hanger. He may have had to slap wallpaper on a ceiling with one hand, and caress it with the other, and make it stick on upside down. That is how he got that way.

So don't judge people by appearances. The man with a hunted look that you see gazing to right and left and front and back and dodging here and there may not be an escaped criminal. No such luck. He may be a pedestrian. The old man with the gray beard and the liver-spots and the shaky hands that you see sitting in front of the office building may not be a beggar. He may be a salesman who was told to wait, that the boss was in a conference.

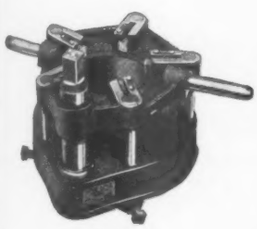
And the man with the broken fingers, and the fallen arches, and the fractured wrists, and the crippled arms, and the busted leg, may not have been in a fight at all. He may be just an oil man who never heard of Nye Tools, or at least never bought any, and who wore himself out trying to cut pipe with old-fashioned tools—when he could just as well have used Nye Tools and done it so much faster and easier, and kept the schoolgirl complexion.

Fraternally yours,

HARRY G. NYE.

Nye Bit Brace Reamer

Reams from ¼ to 1¾ inches inclusive.
NET PRICE $1.17
ABSOLUTELY GUARANTEED



Nye No. 2 (Toledo Type) Geared Threading Device Improved

Capacity 2½ in. to 4 in. inclusive.
Net price complete $50.00
West of Rocky Mountains 55.00
FREE TRIAL—ABSOLUTELY GUARANTEED

Nye thin blade cutter wheel, made to fit all standard makes of pipe cutters, and guaranteed against breakage in use. Made both in smooth and knurled edge.

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All Rights Reserved

Otherwise Known as
THE NYE TOOL & MACHINE WORKS
4120-30 Fullerton Ave., Chicago, Ill.

Nye Saunders Pattern Pipe Cutter

The Nye Saunders type pipe cutter is equipped with Nye knurled wheels. All parts are interchangeable.

No. 1 .....$ 2.00 net
No. 2 ..... 3.00 net
No. 3 ..... 7.33 net
No. 4 ..... 12.00 net
No. 5 ..... 18.67 net

Nye Type Self-Locking Vises

No. 00 .....$2.82 net
No. 10 ..... 3.34 net
No. 20 ..... 5.00 net
No. 30 ..... 7.33 net

Nye Three-Wheel Pipe Cutter Barnes Type

Equipped with Three Nye Knurled Cutter Wheels

No. 1 .....$ 2.48 net
No. 2 ..... 3.30 net
No. 3 ..... 5.50 net
No. 4 ..... 11.00 net
No. 5 ..... 16.50 net
No. 6 ..... 22.00 net

WALWORTH

Steeliron Body Double Disc Gate Valves
500 Lbs. Working Gas Pressure

These Valves are especially designed for use in gas pipe lines carrying pressures up to and including 500 pounds per square inch. They are made in sizes 14, 16, 18, 20 and 24 inches.

Furnished regularly in rising stem and non-rising stem types with spur gear operation and four-inch by-pass. These valves are available also without the by-pass and without the gearing if so desired.

Here are a few of the many points of merit in this Walworth gas valve that make it the outstanding leader in its field.

1. Two bearing support of pinion shaft on the spur gear operated valves.

2. Independent flange connection on the by-pass makes it impossible for gas leakage to occur from one port opening to the other. This construction permits the removal of the by-pass by closing the connection with a pair of 4x10-inch blind flanges.

3. Through bolts employed for bolting the by-pass to the connections offer a distinct point of superiority over the use of studs to connect the by-pass to the body of the valve.

4. Yoke may be shifted 180 degrees so as to place operating handwheel on opposite side.

5. The minimum space occupied by these valves requires smaller pits for installation—an important economy item.

Two bronze wedges are used for spreading the discs. The stem is of rolled bronze and the seat rings and disc face rings are of hard bronze. The stem nut in the N.R.S. Valve also is of hard bronze. Body, bonnet, discs and yoke are of Steeliron, insuring strong and compact castings.

This and other members of the famous Walworth Double Disc Gate Valve Line for sale by

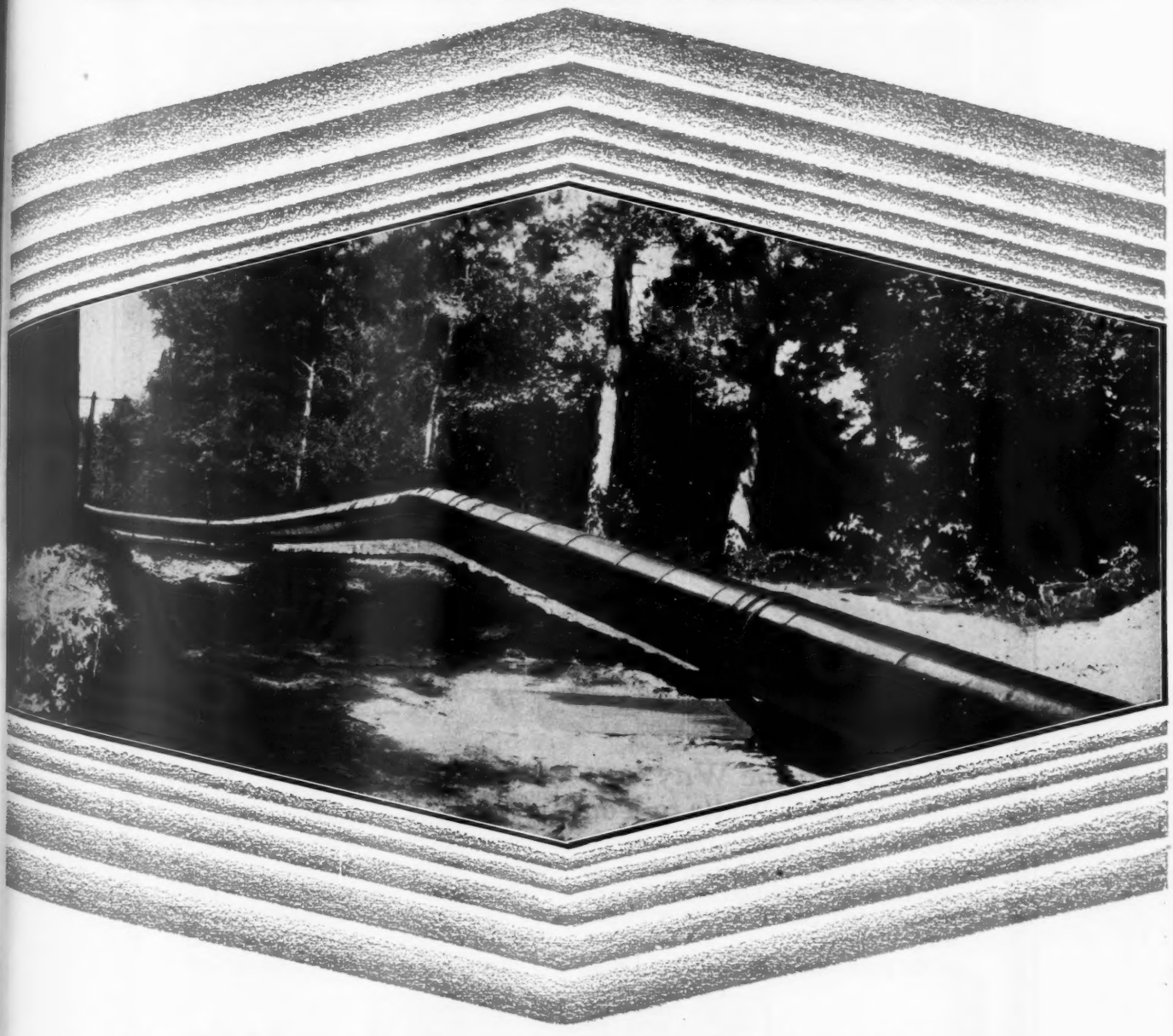
Republic Supply Company

GENERAL OFFICES - HOUSTON, TEXAS

OIL AND GAS WELL SUPPLIES

ROTARY AND CABLE TOOLS

PROGRESS ON PIPE LINE PROBLEMS



Already the engineering behind Smith Pipe has solved many pipe line problems that have confronted operators since underground transportation began—this in the first year of manufacture.

SMITH *WELDED* **GAS LINE PIPE**

A. O. SMITH CORPORATION, ***General Offices: Milwaukee, Wis.***

OIL AND GAS FIELD PRODUCTS DIVISION

District Offices at New York City, Pittsburgh, Tulsa, Houston, Los Angeles

PURE All the Way —from Wells to You

The Pure Oil Company has its own crude producing fields . . . its pipe lines . . . its own large, modern refineries . . . its tank steamers and tank cars . . . its private telegraph lines.

In the producing, refining and marketing of Pure Oil products, every one of the hundreds of jobs—from the nearest sales office to the farthest oil field—is manned by Pure Oil employes . . . over 8,000 of them.

And because *one* organization—The Pure Oil Company—carefully controls all of these operations, you are assured of uniform quality . . . delivery on the dot!

Mr. Jobber: Remember, Pure Oil refines "all petroleum products." To be assured of unvarying high quality let Pure Oil supply YOU. Just phone, write or wire nearest Sales Office

THE PURE OIL COMPANY

U. S. A.

One of the major producing, refining and marketing companies—yet strictly independent

REFINERIES:

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Pensacola, Fla.
Tulsa, Okla.
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Cement Your Well Today—Send Your Crew Back to Their Jobs in 48 Hours!

IDLE labor is doubly expensive. Idle equipment is useless equipment. Put them both to work on your drilling job from 6 to 10 days sooner by using Oilmax Cement in cementing your wells. Just 48 hours after the use of Oilmax and your crew goes back to their jobs —your equipment is in full operation again.

For Oilmax gets as hard in 24 hours as ordinary cement in 10 days —and increases in strength thereafter! It sets up promptly and normally. It is extremely plastic, slips quickly and works well in bailer or pump. And this specially-processed cement, prepared solely for oil and gas wells, *needs no accelerators or admixtures.*

You'll find, as many large operators have, that Oilmax is far more dependable than ordinary cement. Not only for setting casings, but for *all* difficult hole jobs—even under the most adverse conditions. Used with water only, it makes possible a uniform mix, eliminating weak or soft spots.

Try it next time and speed up your drilling operations—lower overhead—have equipment available more *quickly* for other jobs. Oilmax is available through dealers. Packed in durable paper bags. Shipped in mixed cars with Ash Grove Portland Cement. Write us if your local dealer does not stock it.

Produced Only by
ASH GROVE LIME & PORTLAND CEMENT CO.
Founded in 1882
KANSAS CITY, MO. — OMAHA, NEBR.
District Sales Office: OKLAHOMA CITY, OKLA. Phone Maple 0642.

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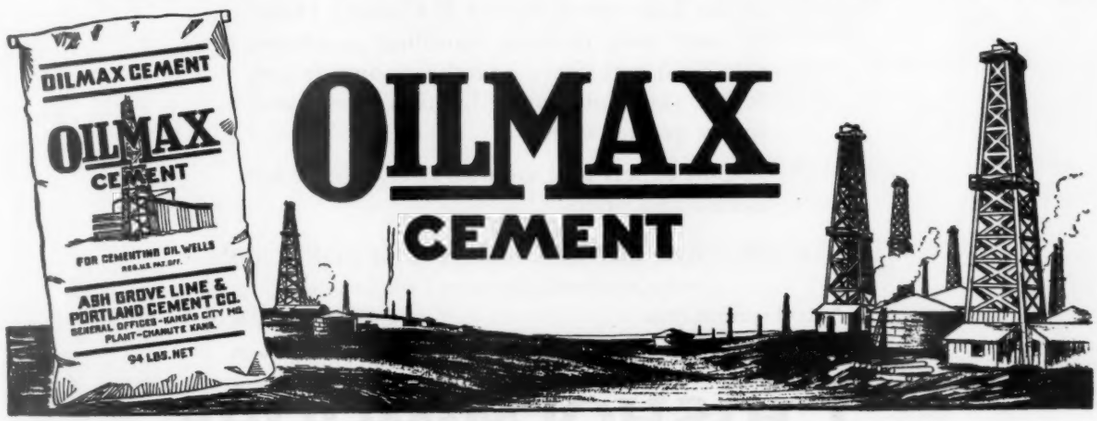


Here's why
THE CYCLONE
Lifts Easier

Steel swivel hooks, drop-forged, heat-treated and proof-tested.

Thirteen antifriction bearings—one at every rotating point.

Patented exclusive gyrating principle which makes possible keeping many times the usual number of lift gear teeth in mesh at all times. Another important safety feature.

Equipped with the famous Hercules Inswell Electric welded, heat-treated and proof-tested chain. Guaranteed the strongest and best wearing chain obtainable—insuring safety again.

18% less effort required to lift the load.

Equipped with a Timkin Thrust Bearing.

All moving parts packed in grease in a dust-proof, oil-tight housing. It needs refilling only once a year under ordinary usage.

50% less friction. Tested to 75% overload. Alemite Lubrication.

THESE unusual construction features account for the tremendous lifting power of the high speed, Model K Cyclone Hoist. In your own material handling problems, this hoist will prove a vital economy factor. It will save time, lower handling costs, and insure greater safety.

A C-M expert is at your service. Write for details and prices.

CHISHOLM-MOORE HOIST CORPORATION

(Division of Columbus-McKinnon Chain Company)

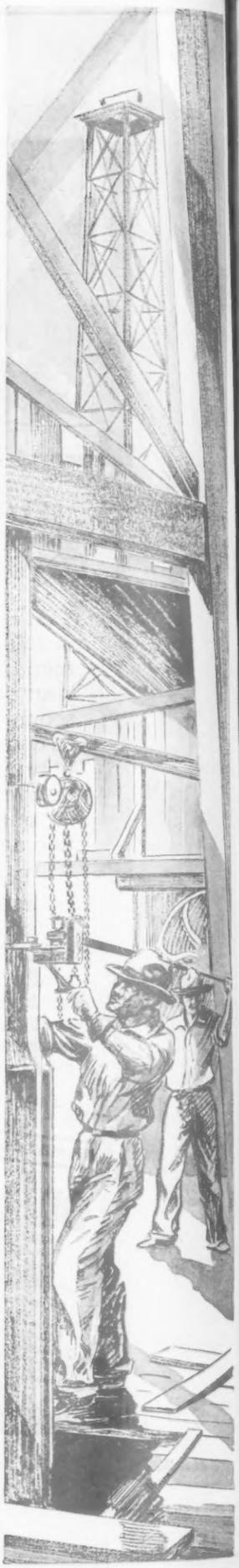
5020 Fremont Ave. :-: Tonawanda, N. Y

Branches: Chicago, Cleveland, New York, Philadelphia, Pittsburgh

CHISHOLM-MOORE

CHAIN HOISTS — CRANES TROLLEYS CUPOLA CHARGERS — ELECTRIC HOISTS

Representatives in all principal cities for prompt service



Bigger Power Plants—Higher Efficiencies

FABRICATION of modern power plant piping requires oxwelded joints that are not only as strong as the pipe—100% efficient—but also tough and ductile. Where efficiency, reliability and permanent tightness count most, power plant piping is fabricated under Linde procedure control.

The Best of Everything for
OXWELDING AND CUTTING

LINDE OXYGEN
The Linde Air Products Company

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Prest-O-Lite
Dissolved Acetylene
The Prest-O-Lite Company, Inc.

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Oxweld
Apparatus and Supplies
Oxweld Acetylene Company

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UNION CARBIDE
Union Carbide Sales Company

Units of
UNION CARBIDE AND CARBON CORPORATION

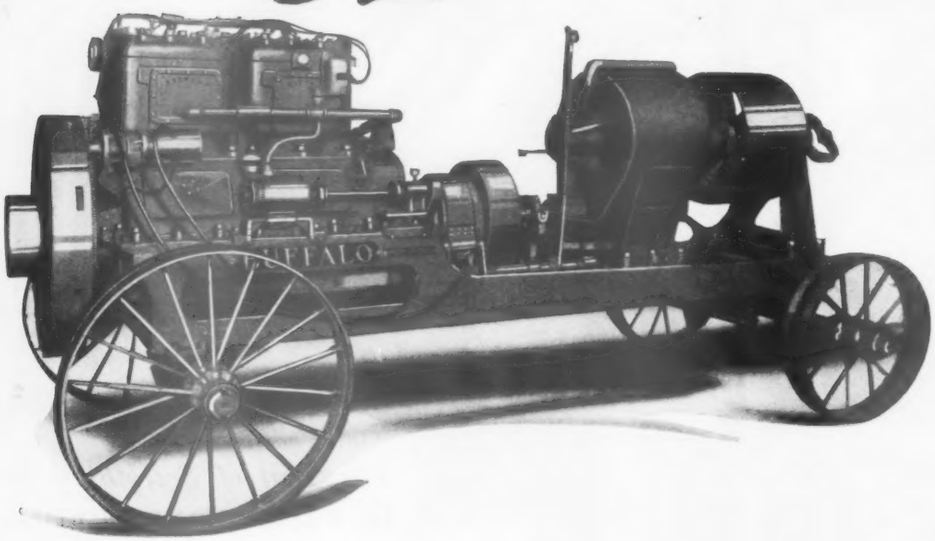
General Offices UCC *Sales Offices*

30 East 42nd Street, New York, N.Y. In principal cities of the country

55 Oxygen Plants–36 Acetylene Plants–99 Oxygen Warehouses–100 Acetylene Warehouses–38 Apparatus Warehouses–235 Carbide Warehouses

"OVERSIZE"

EXPRESSES THE Buffalo DRILLING ENGINE



"Buffalo" **Has high factor of safety built into its parts.**

"Buffalo" **For years has built the most sturdy, reliable and dependable drilling engines.**

"Buffalo" **Drilling unit is not an experiment but the outcome of a thorough knowledge of oil field requirements and experience in building engines.**

Let us send you complete information on the Buffalo Drillers.

BUFFALO GASOLENE MOTOR CO.

1282-1292 Niagara Street **Buffalo, N. Y.**

Sales and Service Stations

ABILENE, TEX. R. H. Shields
BRADFORD, PENNA. R. R. Reck
EL DORADO, KANS. R. H. Shields
McCAMEY, TEX. R. H. Shields
MIDLAND, TEX. R. H. Shields
KITTANNING, PENNA. Louden Tool Co.
MANNINGTON, W. VA. The Prichard Supply Co.
PARKERSBURG, W. VA. Parkersburg Rig & Reel Co.
WAYNESBURG, PENNA. The Prichard Supply Co.

ENGINE OF CONSTANT SERVICE
POWERED BY Buffalo

Taking such chances is not a part of Good Engineering!

Using wire lines, the grade of which are not definitely known, is hazardous practice.

Good engineers everywhere abandon this practice by using

WILLIAMSPORT WIRE Telfax Tape Marked Factory Certified LINES

It is no longer necessary to take chances upon getting the wrong grade of lines into service as Williamsport has forever made this unnecessary by their Telfax System of Certification.

Williamsport wire lines are not only preferred because of this protection, but because of their uniform superiority of quality made possible by their process of manufacture.

You will be interested in the facts we can send you about this superior product. Send for them.

WILLIAMSPORT WIRE ROPE COMPANY

Main Office and Works: Williamsport, Pa.

General Sales Offices: 122 S. Michigan Ave., Chicago, Ill.

Oil Country Sales Offices: Williamsport Bldg.,
Fourth and Midland Valley Tracks, Tulsa, Okla.

Our Own Warehouses:

Houston Shidler Blackwell Maud Ardmore Holdenville Bristow
Wichita Falls Smackover Arkansas City Shreveport Casper Lewistown
Electra Odessa Seminole Borger Pampa Wink San Antonio

Distributed by the Bridgeport Machine Company, Wichita, Kansas, and all of their Mid-Continent Branches

The Largest Exclusive Wire Rope Plant in America

Field Performance Proves Quality of J&L Seamless

Exceptional performance of J & L Seamless in the every-day work of the oil regions backs up our claims of its unsurpassed quality and unvarying dependability. These characteristics are the direct result of J & L's ownership-control of every step in manufacture and nearly 80 years' experience in steel making.

Oil and Gas men, after using our Seamless Steel Casing under every operating condition, pass the word along that "there's no better seamless made than J & L."

J&L STEEL

"Our Hat is Off to J&L Seamless"

Read the following story from the oil fields. It was written by Bob Speck, Covington, Okla., store manager, to the Tulsa office of the Frick-Reid Supply Company, J & L Pipe distributors. The story, just as it was received, reads as follows:

"Tell this one to the Grass Root boys.

"On Friday, July 13th, Wirt Franklin Petroleum Corporation finished running a 6,098-foot string of 6⅝" 26-lb. J & L Seamless Casing in their No. 1 Knecht in Sec. 21-18-4w, Logan County, Oklahoma.

"Compiling the statements of the Farm Boss, Mr. Addie Cope, and Harry Franklin, Tool Pusher, we find that in running 230 joints which averaged approximately 26'6" to the joint, there was not a wobble or a bobble from the top to the bottom, not a defective thread, not a joint that did not 'stab' perfectly the first time, and, as a whole, 'the smoothest running casing job we ever saw.'

"The writer timed the crew for about an hour and found they averaged a little better than two joints every five minutes, starting all joints with chain tongs and finishing up with rotary tongs off the cat head on the rotary.

"OUR HAT IS OFF TO J & L SEAMLESS CASING"

Members of the crew on the Wirt Franklin job described in the letter reprinted above.

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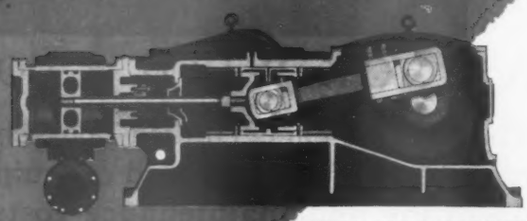

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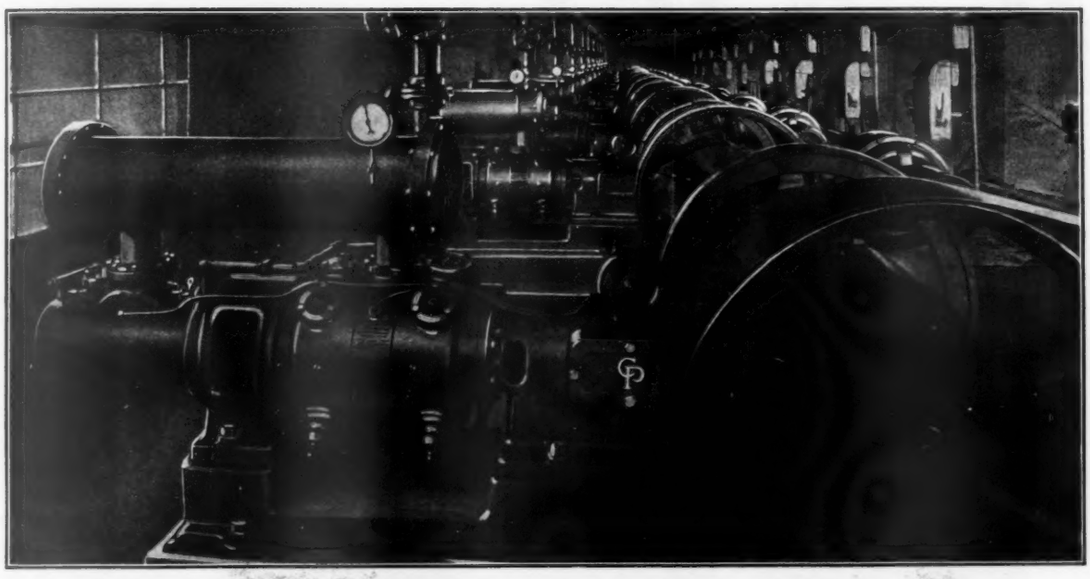

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CONTINENTAL

Oklahoma, California Show Decline

Highest daily average estimated total production in 1928, week ended Dec. 29, 2,585,844 bbls. Lowest in 1928, May 19, 2,338,241 bbls.

Conservation Movement in Oklahoma Mainly Responsible. Houston Meeting Important Factor in Situation

By Andrew M. Rowley

Highest daily average estimated light oil production in 1928, week ended Dec. 29, 2,158,134 bbls. Lowest in 1928, Mar. 3, 1,927,713 bbls.

Efforts of operators in the greater Seminole area in Oklahoma to hold production more nearly to market requirements and to eventually get it down to the limit of 650,000 barrels daily ordered by the Corporation Commission of the State resulted in a decline of nearly 33,000 barrels daily in the output of that State last week, this being the big factor in causing the largest decrease in production recorded by the industry in months. California showed a drop of 6,000 barrels daily due chiefly to further declines at Santa Fe Springs so Oklahoma and California accounted for practically the entire decrease registered in output for the country as a whole.

Attention of the entire industry is centered on the meeting to be held on Friday of this week in Houston, Tex., when members of the four regional committees of the American Petroleum Institute will consider the general situation affecting production and consumption and make recommendations to be acted upon March 27 by the directorate of the Institute. Prosperity for the petroleum industry during this year and, probably next year, depends to a great extent upon what is done at Houston and upon what measure of co-operation the oil companies in all sections of the country extend in the working out of the plan which may be recommended.

Everyone is agreed present production is far in excess of requirements and that crude oil prices are below what they must be in order to insure a profit to producers. What is being accomplished in Oklahoma undoubtedly can be done in California and Texas.

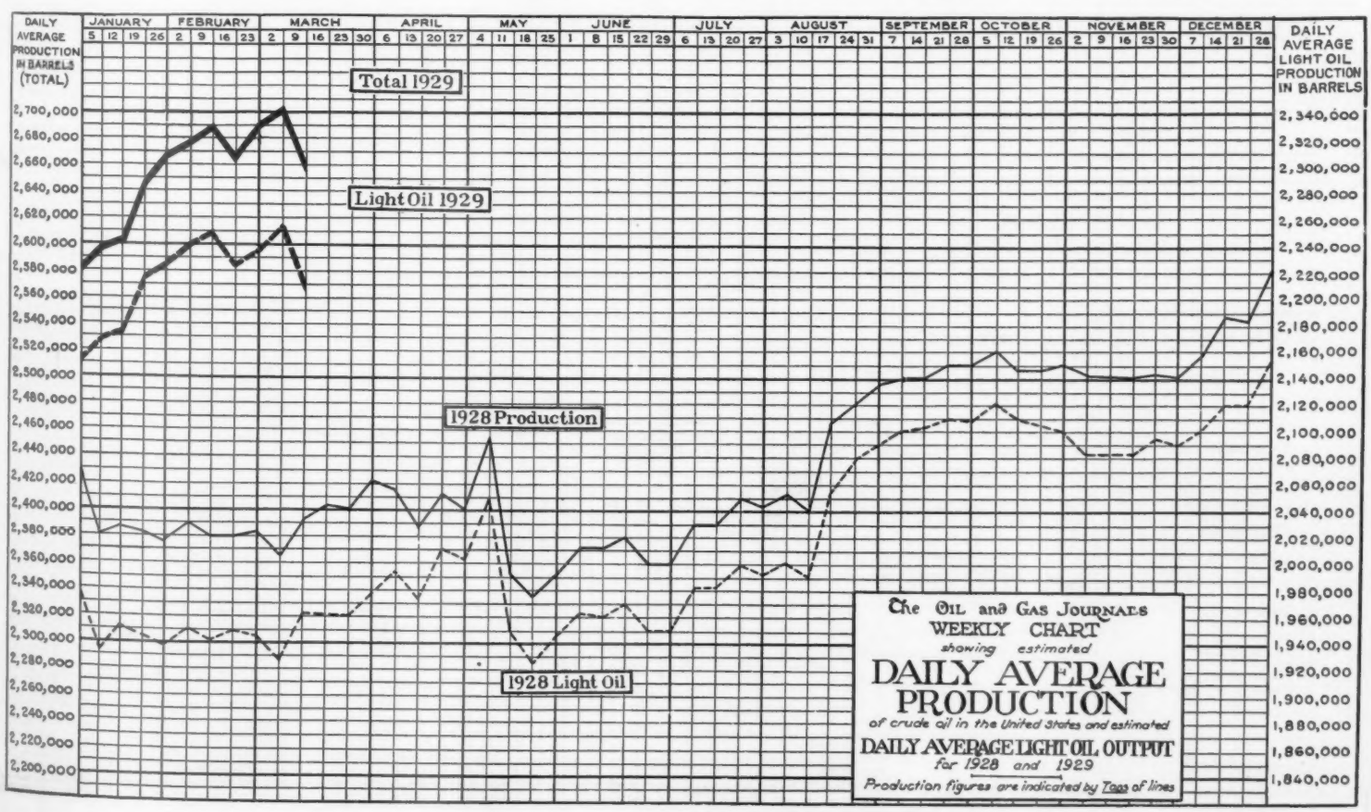
Present stocks of crude oil and refined products are an unnecessary burden the industry should not be compelled to carry. It does not take long for cheap oil placed in storage to become quite costly to its owner. It also must be kept in mind that even should present production be reduced 300,000 barrels daily it would require more than 13 years to use up the crude now in storage, that representing withdrawals of 100,000 barrels every day.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended March 9, and a comparison with the previous week follows:

	March 9		March 2	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	10,515	.....	10,470	.....
Burbank	22,335	.....	22,290	.....
Other Osage Fields	25,785	.....	25,840	.....
St. Louis-Pearson	101,320	.....	113,565	.....
Cushing and Shamrock	20,470	.....	20,435	.....
Bristow	18,835	.....	18,910	.....
Allen	25,595	.....	25,860	.....
Seminole	287,420	.....	306,170	.....
Northern Miscellaneous	111,840	.....	113,080	.....
Southern Fields	55,210	.....	55,485	.....
Total Oklahoma	679,325	.....	712,105	.....
West Texas—				
Hendricks	171,148	.....	172,984	.....
Yates	86,421	.....	85,247	.....
Remainder	129,309	.....	130,164	.....
Total West Texas	386,878	.....	388,395	.....
North Louisiana	30,005	5,610	29,965	5,760
Arkansas	23,175	50,450	23,510	50,890
North Central Texas	134,888	.....	136,985	.....
Texas Panhandle	55,640	.....	56,170	.....
East Central Texas	22,108	.....	22,334	.....
Kansas	95,320	.....	95,615	.....
Total Mid-Continent Area	1,427,339	56,060	1,465,079	56,650
Gulf Coast	.....	144,437	.....	140,696
Southwest Texas	.....	62,371	.....	61,435
Eastern	108,000	.....	108,000	.....
Rocky Mountain Area	70,855	.....	71,959	.....
California—				
Santa Fe Springs	189,000	.....	200,000	.....
Long Beach	180,098	.....	178,500	.....
Torrance	2,000	12,500	2,000	12,500
Huntington Beach	46,500	.....	47,000	.....
Elwood	24,000	.....	21,000	.....
Inglewood	15,000	11,000	15,000	11,000
Ventura Avenue	56,000	.....	55,000	.....
Seal Beach	35,000	.....	33,500	.....
Remainder of State	57,500	166,000	58,000	167,000
Total California	605,000	189,500	610,000	190,500
Total United States	2,211,194	452,368	2,255,038	449,281
Grand Total		2,663,562		2,704,319

Total Decrease, 40,757 Bbls.; Light Oil Decrease, 43,844 Bbls.



Kerosene Advances in Oklahoma

Large Purchase Boosts Prices One-fourth to Three-eighths Cents. Refinery Gasoline Market Is Firm. High Gravity Fuel Oils Are Lower

By C. O. Willson

A substantial purchase of kerosene for domestic movement in Oklahoma during the past week served to give additional price strength to the entire kerosene market in Oklahoma (Group 3) and the product is the strongest of the refinery list. The purchase was made by the Sinclair Refining Co. and is said to have totaled approximately 1,000,000 gallons with several Oklahoma refiners sharing in the business. The kerosene is for delivery at Sinclair stations and apparently was needed to supplement the supplies available from Sinclair refineries.

The improvement in refinery gasolines noted in these columns a week ago continues. The larger refiners have not advanced their prices on any grades to the jobbing trade. The movement to the domestic trade has increased materially and salesmen covering the middle western marketing territory report less and less material being quoted under the general Group 3 price.

Those in touch with market conditions in the Standard of Indiana territory where Oklahoma and Kansas refiners dispose of the bulk of their gasoline state that the improved demand is due to two developments. In the first place weather conditions have improved in part of the territory and actual consumption has increased. However, in some sections all except the improved highways are impassable due to heavy rains. In addition to the improved weather several sellers have been able to interest buyers in purchases for storage. This indicates that the jobbers have more confidence in the refinery market and are willing to buy at present prices to cover part of their late spring and summer requirements.

Although the higher gravity fuel oils are more freely available than in March at lower prices the general fuel oil market cannot be termed weak. The rapid advance in the high gravity fuel oils during February was brought about by the large overnight demand for furnace oil material. With this demand supplied it was expected there would be some recessions in prices. Many of the grades are tightly held at present prices and a better movement of the high cold test material was apparent during the past week.

As is shown in the price tables of this issue Oklahoma fuel oil prices are now lower than any other Mid-Continent area with the exception of West Texas. The North Texas group of refiners after a period of low fuel oil prices extending over two years has been able to advance prices during the past few weeks and apparently have stabilized their market for the remainder of the year. The railroads and other local buyers are now taking practically the entire output of the North Texas refiners and this removes them as a factor in the general Mid-Continent market which was responsible for the low prices in Oklahoma and West Texas.

In North Texas it is said that one large railroad buyer has offered a long time contract with a base price of 70 cents, the price to be advanced or lowered with 60 per cent of the change in posted crude oil schedules. Some of the refiners are seeking a better base price believing that their spot market will improve so that the 70 per cent price will be too low.

Crude Situation

Those who are endeavoring to anticipate market trends over the next 60 to 90 days are inclined to base the refinery market on future developments in the crude oil situation. Developments in the gasoline market have been encouraging since the first of March, but it is felt that the present overproduction of crude oil must be remedied to assure continued strength.

An overproduction of crude oil in the Mid-Continent in the past has always resulted in lower crude oil prices, which in turn mean enlarged crude oil runs and an excess of refinery products. With the many improvements and enlargements

(Continued on Page 150)

REFINED MARKET BAROMETER

The domestic grades of refinery gasolines were again reduced at refineries along the West and East Coasts. The price-war situation in lower California, which is responsible for the low prices there, has not improved, and prices were lowered at refineries to meet new competitive conditions in the retail market. Along the East Coast there has been considerable price cutting for several weeks, resulting in another one-fourth-cent reduction on the U. S. Motor grade. Sales of two cargoes of 390 end-point gasoline under the general market also served to disturb the export situation. At the interior points the refinery gasoline market was generally reported steady, except in Pennsylvania, where refiners have reduced their prices on several grades. Kerosene was strong in the Mid-Continent and Middle West and weak in the East, with a slow export movement. The furnace oil demand has slackened, but prices are firm. Gas oils are strong at most refining centers. There were no changes of a general nature in refinery fuel oils during the week. Natural gasoline prices were steady both in the Mid-Continent and California. Wax prices are steady following a period of steady decline in price. Among the lubricants, cylinder stocks are strong.

Mid-Continent—Refinery gasoline market firm or advancing, the higher prices becoming effective in North Louisiana and Arkansas. Kerosene strong and prices higher in all areas. Fuel oils steady except high-gravity grades. Firm or higher prices for gas oil. Minor changes in natural gasolines. Furnace oils lower. No change in wax and lubricants.

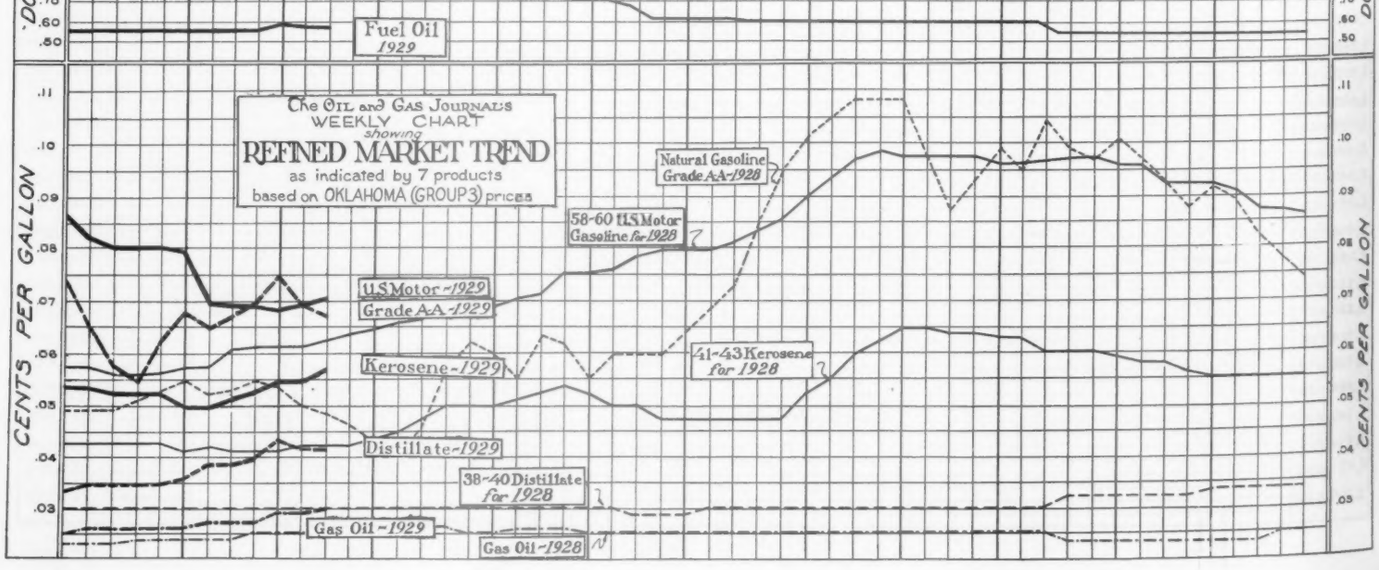
East Coast—Price on U. S. Motor gasoline for domestic movement reduced one-fourth cent. Both domestic and export gasoline market unsettled. Kerosene weak. Slow-up in gas oil demand. Fuel oil movement steady.

California—Refinery gasoline again reduced. Lower prices on some grades of fuel oils. No change in natural gasolines.

Chicago—Gasoline firm, although demand not active. Kerosene prices higher. Gas oils easier. High-gravity fuel oils scarce. Furnace oil demands slow up and prices lower.

Pennsylvania—Prices on several grades of gasoline and naphtha lower. Kerosene firm. No change in cylinder stocks and neutrals.

Gulf Coast—Fair demand for neutrals with no price changes. Less fuel oil being offered, and prices steady.



Seek Big Cut in Crude Oil Production

Plan of A.P.I. Is to Try to Hold Output of United States and Venezuela Down to What It Was One Year Ago

By Andrew M. Rowley

What promises to be one of the most important meetings ever held in the history of the petroleum industry is scheduled for Friday of this week when members of the four regional committees appointed by E. B. Reeser, president of the American Petroleum Institute, will assemble in The Texas Company Building, Houston, to formulate recommendations regarding production and the conservation of crude petroleum in the United States and northern South America. Recommendations to be made by these leaders in the different areas of the United States, as members of the institute's general committee of the Committee on World Production and Consumption of Petroleum and Its Products will be presented at a special session of the board of directors of the American Petroleum Institute called by President Reeser to meet in New York March 27 to "receive, consider and take action" upon the report of the Houston meeting.

The meeting to be held in Houston originally was planned to be held in New York. R. C. Holmes, president of The Texas Company, is chairman of the general committee.

The primary object of the four regional committees representing the Pacific Coast, Gulf Coast and Atlantic Seaboard, interior United States, and Mexico and northern South America, and of the general committee, it is understood, is to hold production of crude oil in the United States and in Venezuela down to what it was one year ago. This means curtailment in the output of the United States of about 341,180 bbls. daily and in Venezuela of about 146,007 bbls. daily, a total of 487,187 bbls. a day. These figures are shown in the accompanying table and are based on The Oil and Gas Journal's weekly estimates of crude oil production in the United States for the week ending March 2, 1929, and for the week ending March 3, 1928, and on figures of the production of Venezuela for January, 1929, and for January, 1928, the latest authentic figures available for that country. Figures on imports from Venezuela used in the table are those of the United States Bureau of Mines.

Means Big Reduction

The plan of the committee means reducing the production of California approximately 184,000 bbls. daily; that of Texas and the Louisiana Gulf Coast, 139,604 bbls. daily, and that of Oklahoma, 58,170 bbls. daily.

At first glance it seems as if the regional committees are confronted by a task impossible of accomplishment and that any effort to reduce production in the United States by 341,000 bbls. daily would be bound to end in failure. However, reports received from California are to the effect there is almost unanimity there in the decision to stop drilling to deeper horizons recently discovered—the greatest menace, probably, in the whole California situation—and in the decision to hold California's output down to approximately 600,000 bbls. daily.

Oklahoma operators have agreed to the plan to hold production in that State to 650,000 bbls. daily and the Corporation Commission of Oklahoma has placed its stamp of approval on the movement by issuing an order so limiting the output. This effort is meeting with greater success, probably, than any previous conservation movement in Oklahoma as is shown by the decline of more than 32,000 bbls. daily in the daily average production for the past week as compared to the previous week. The different companies operating in the flush pools of the Greater Seminole area in Oklahoma are co-operating with the umpire in charge of the conservation movement and are making an honest and diligent effort to hold their production down to the quota permitted them by the conservation committee and the state. An output of 650,000 bbls. daily in Oklahoma would be nearly 4,000 bbls. daily less than the production a year ago.

West Texas presents a problem to the regional committees and the general committee but it is believed when operators in that section of the country have proved to their satisfaction a real effort is to be made to limit the output of California and to hold it to approximately 600,000 bbls. daily or about 200,000 bbls. a day less than the state has been producing, and when they see that success already is crowning the movement in Oklahoma to reduce the output of that state more than 75,000 bbls. a day, from the recent peak, they then will endeavor to do their part in trying to reduce their production the 94,000 bbls. daily needed to bring the output there down to what it was a year ago.

The agitation in some sections of the United States for a tariff on crude oil imports from South America has caused Venezuela operators to consider seriously the overproduction situation in the United States, which is the primary cause of the talk of a tariff, and it is believed those companies operating in Venezuela will co-operate with the committee in the effort to solve this problem confronting the entire petroleum industry of the world.

Crude Oil Demand

It is estimated refiners in the United States will run to stills during 1929 approximately 965,097,280 bbls. of crude petroleum to supply the demand for gasoline in this country and exports.

The accompanying table on refinery operations in 1929 is based on an estimate of gasoline demand (domestic demand plus exports) of 415,000,000 bbls. for 1929. With an estimated gasoline recovery (including natural gasoline blended at refineries) of 43 per cent this would mean a total refinery demand for crude oil of 965,097,280 bbls.

In the table it is assumed that each refinery territory in 1929 will refine as great a percentage of the total crude oil run to stills as it did in 1928. On the whole 1928 was a satisfactory year in refining and the operations of the several refining areas were fairly well balanced without any large surplus in any section. For that reason it seems reasonable to assume that a healthy market condition will prevail if the same relative relationship can be maintained.

The data in the table do not include crude oil consumed outside the refineries. The government figures last year showed very little consumption of this character. However, in other years it has run as high as 80,000,000 bbls. Apparently the reports are so mixed that it is difficult to differentiate between the crude oil run to stills and that consumed outside the refineries. Practically all of this latter consumption is in California.

Should Reduce Stocks

A daily average production of 2,363,139 bbls. during this year would be a total output of 862,545,735 bbls. of crude oil. If imports from Venezuela would average 105,900 bbls. daily as they did in January, 1928, it would mean imports this year from Venezuela totaling 38,653,500 bbls. or a total of 901,199,235 bbls. for the year from United States production and Venezuelan imports. It must be kept in mind, however, production so far this year has been considerably above the daily average of a year ago and, at the same time, imports from Venezuela have been greater. Also that these figures do not include imports from Mexico, Peru and other countries.

In order to assure prosperity for the industry as a whole, production of crude oil plus imports should be held as far below this figure of crude oil demand as possible, in order that the burden of the immense stocks of crude and refined oils now being carried might be lessened. On February 1 of this year there were in storage in the United States more than 625,000,000 bbls. of all oils. The vast cost of carrying this oil in storage must eventually be borne by the consumer, hence it is to the public interest that stocks of crude oil and refined products be decreased as greatly and as rapidly as possible.

GAIN IN PRODUCTION IN PAST YEAR

Field—	March 2, 1929	March 3, 1928	Incr. or decrease
Oklahoma	712,105	653,935	58,170
West Texas	388,395	293,880	94,515
North Central Texas	136,985	128,442	8,543
Texas Panhandle	56,170	72,625	*16,455
East Central Texas	22,334	24,798	*2,464
Gulf Coast	140,696	119,535	21,161
Southwest Texas	61,435	27,131	34,304
Total Texas and Louisiana Gulf Coast	806,015	666,411	139,604
Kansas	95,615	112,710	*17,095
North Louisiana	35,725	45,300	*9,575
Arkansas	74,400	86,725	*12,325
Total Mid-Continent	1,521,729	1,418,415	103,314
Eastern	108,000	104,000	4,000
Rocky Mountain	71,959	77,558	*5,599
California	800,500	616,500	184,000
Total United States	2,704,319	2,363,139	341,180

*Decrease.

VENEZUELA PRODUCTION

Daily average, January, 1929	371,630
Daily average, January, 1928	225,623
Increase	146,007

VENEZUELA IMPORTS

Daily average, January, 1929	181,387
Daily average, January, 1928	105,900
Increase	75,487

REFINERY OPERATIONS IN 1929

	Total crude oil	Domestic	Foreign
East Coast	180,473,700	107,572,325	72,901,375
Appalachian	34,743,600	34,743,600	.....
Indiana, Illinois, etc.	104,230,080	104,230,080	.....
Oklahoma, Kansas, etc.	118,707,300	118,707,300	.....
Texas	196,880,400	195,502,238	1,378,162
Louisiana-Arkansas	80,101,300	72,091,170	8,010,130
Rocky Mountains	27,022,800	27,022,800	.....
California	222,938,100	222,938,100	.....
Total	965,097,280	882,807,613	82,289,667

R. C. Holmes

E. B. Reeser

Sunday Shut-down Plan is Successful

Detailed Data Show Fear of Water Encroachment Groundless While Small Pressure Only Required to Start Wells

By J. L. Dwyer

The Sunday shut-down movement in Oklahoma has been in effect for four successive week-ends, and the results have apparently justified the working of the idea which was originated about one year ago by T. B. Slick. Under this plan, all producing wells are shut down on Sunday morning at 7 a. m. and left in that state until 7 a. m. Monday morning. The wells are shut in regardless of whether they are making their production by the pump, the swab or the air-gas lift.

The following companies have adopted the Sunday shut-down plan: Barnsdall Oil Co., Prairie Oil & Gas Co., T. B. Slick, Tidal Oil Co., Magnolia Petroleum Co., Atlantic Oil Producing Co., Continental Oil Co., Producers & Refiners Corp., and Indian Territory Illuminating Oil Co. The idea is quite likely to spread to other leading producers for aside from the economic aspect of the plan, there is the humanitarian side of it, which affords to the men employed in the field forces, one day of recreation each week. Many of the men thus affected have not had a Sunday off in three years.

At the start of this plan, it was believed that there were far too many mechanical difficulties involved in the matter to make it feasible, but an inspection of the records of the companies seems to have dispelled this to a large extent. The principal objection offered to the plan was the danger of permitting wells which were making water to stand idle while the water was permitted to encroach upon the sand. There were many ideas advanced regarding this plan, the consensus of opinion being that there was a great danger of water coning which would introduce a water soaked condition to the sand face, and this in turn would prove very injurious to the wells.

Another mechanical difficulty believed to exist was the fact that when air-gas lift wells were idle for 24 hours, the compressor capacity which would be necessary to restore these wells to production would be so great that few leases would have it. This idea also seems to have been erroneous.

The Barnsdall Oil Co. was one of the first to adopt this plan, and it did not adopt it until the production department had made extensive studies of the plan and all its workings. Charles Jacobsen, division superintendent of the company in charge of the territory which includes the Greater Seminole area, made a special study of the problem for some time before he was convinced that the plan could be adopted without any physical damage to the properties.

After using the plan for four weeks, Mr. Jacobsen is one of its strongest advocates, and he has even expressed the hope that the industry will make it universal in adoption.

A study of the accompanying table of production will give the most complete picture of the results of the Sunday shut-down. The list gives the detailed production of the Barnsdall Oil Co. in the various pools of the Greater Seminole area on the 24 hours preceeding the Sunday shut down and the 24 hours after the shut down, for three successive Sundays. The wells which make some water are especially worthy of note, for in many cases the water which is produced with the oil is not only held even, but reduced.

Instead of having much trouble getting the wells back on production after the shut down, the average time necessary to put the air-gas lift wells back was 45 minutes, and the highest pressure necessary to kick-off the wells was 450 pounds.

Since the Barnsdall company list of properties is spread over almost all of the Greater Seminole and St. Louis Pools, it is assumed that the results may be considered typical of the operating conditions in all parts of the region.

FEBRUARY 17
Earlsboro District

	Prod. bbls.	
I. Brown:		
No. 1	502	Swabbed 24 hrs. 265 water
No. 2	405	Swabbed 24 hrs. 115 water
No. 3	860	Swabbed 24 hrs. 200 water
No. 4	5	Pumped, 263 water
	1,773	
F. Bruner:		
No. 1	...	Pulled tubing and rods
No. 2	30	Pumped 176 water
N. Bruner:		
No. 1	37	Swabbed 14 hrs., 241 water, changed line.
No. 2	989	On gas 24 hrs.
No. 3	63	Swabbed 24 hrs., 447 water
	1,089	
C. Cudjo:		
No. 1	24	Pumped
J. Davis:		
No. 1	889	On gas 21 hrs., line frozen
No. 2	32	Flowed on air
No. 3	...	Down 24 hrs., cups off.
No. 4	28	Flowed on air.
	949	
M. Davis:		
No. 1	17	Pumped.
No. 2	24	Flowed on packer.
	41	
D. Davis:		
No. 1	48	Flowed on air
No. 2	30	Pumped, 120 water.
	442	Swabbed 24 hrs., 12 water.
	530	
G. Gibson:		
No. 1	408	Swabbed 24 hrs., 204 water
No. 2	200	Swabbed 24 hrs., 300 water.
No. 3	...	Running tubing and rods.
No. 4	200	Swabbed 24 hrs., 250 water.
No. 5	189	Swabbed 24 hrs., 300 water.
No. 7	189	Pumped.
No. 8	180	Pumped.
	1,356	
G. Hearn:		
No. 1	1	Pumped.
J. Ingram:		
No. 1	...	Pumped 68 water.
No. 2	136	Pumped 118 water
No. 3	158	Flowed on air.
No. 4	1	Pumped 3 water.
No. 5	89	Pumped.
No. 6	...	Pumped 63 water.
No. 7	2	Pumped 196 water.
No. 8	59	Pumped.
	445	
N. Jackson:		
No. 1	19	Pumped 10 water.
S. Pack:		
No. 1	59	Pumped.
No. 1-A	25	Pumped.
No. 2	5	Pumped.
No. 3	35	Pumped.
	124	
Peter:		
No. 1	...	Preparing to plug.
No. 2	54	Pumped 150 water.
No. 3	15	Pumped.
No. 4	5	Pumped.
	74	
M. Sango:		
No. 1	30	Pumped.
No. 3	1,392	On gas 24 hrs.
	1,422	
Seboka:		
No. 1	260	Swabbed 24 hrs., 175 water.
H. Sullivan:		
No. 1	5	Pumped.
Sullivan-Harjo:		
No. 1	7	Pumped.
No. 2	21	Pumped.
Wasutke:		
No. 1	59	Swabbed 24 hrs., 321 water.
No. 2	300	Swabbed 23 hrs., 70 water, changed lines 1 hr.
No. 4	298	Swabbed 23 hrs, 400 water, changed lines 1 hr.
	657	
Total Earlsboro	8,627	

Other Districts

M. Carter:		
No. 1	74	On air.
No. 2	18	Pumped.
No. 4	4	Pumped.
No. 5	30	Pumped.
No. 6	150	Pumped.
No. 7	8	Pumped.
No. 8	10	Pumped.
	394	
E. Coker:		
No. 1	1,770	On gas 24 hrs.
No. 2	2,820	On gas 24 hrs.
No. 4	2,200	On gas 24 hrs.
	6,790	
Cotcha:		
No. 1	600	Swabbed 18 hrs., ran tubing 6 hrs.
No. 2	300	On gas 24 hrs.
	900	
D. Fife:		
No. 1	975	On gas 24 hrs.
Henry:		
No. 1	311	Swabbed 24 hrs.
No. 2	190	Flowed on air.
	501	
D. Hotulke:		
No. 2	125	Pumped 12 hrs., pulled tubing.
No. 3	225	Pumped 24 hrs.
	350	
L. Jones:		
No. 1	550	Pumped 24 hrs.
No. 2	150	Pumped 24 hrs.
No. 3	30	Pumped 24 hrs.
No. 4	250	Pumped 24 hrs.
	980	
Kepaya:		
No. 1	20	Pumped 24 hrs.
S. McNac:		
No. 1	22	Pumped 24 hrs.
E. Murrow:		
No. 1	80	Pumped 24 hrs.
No. 2	125	Pumped 24 hrs.
No. 3	85	Pumped 24 hrs.
No. 4	40	Pumped 24 hrs.
	330	
Wm. Stahl:		
No. 1	688	On air 24 hrs.
No. 2	60	Pumped.
No. 3	540	On air 24 hrs.
	1,288	
Walker:		
No. 1	457	On gas 24 hrs.
Wallace:		
No. 1	375	Flowed.
Total	13,252	
Total Greater Seminole	20,758	

FEBRUARY 19
Earlsboro District

I. Brown:		
No. 1	170	Swabbed 155 water 18 hrs.
No. 2	260	Swabbed 140 water 18 hrs.
No. 3	595	Swabbed 220 water 15 hrs.
No. 4	5	Pumped 10 hrs., 261 water.
	1,030	
F. Bruner:		
No. 1	89	Pumped 58 water, 18 hrs.
No. 2	30	Pumped 118 water, 18 hrs.
	119	
N. Bruner:		
No. 1	32	Swabbed 13 hrs., 374 water.
No. 2	748	On gas 18 hrs.
No. 3	26	Pumped 18 hrs., 321 water.
	806	
C. Cudjo:		
No. 1	12	Pumped.
J. Davis:		
No. 1	735	On gas 18 hrs.
No. 2	40	Flowed 24 hrs., 6 hrs. pinched in.
No. 3	40	Pumped.
No. 4	26	Flowed on air 24 hrs., 6 hrs. pinched in.
	841	
M. Davis:		
No. 1	17	Pumped.
No. 2	23	Flowed on Fitz packer.
	40	
D. Davis:		
No. 1	40	Flowed on air 24 hrs., 6 hrs. pinched in.
No. 2	18	Pumped 125 water, 18 hrs.
No. 3	325	Swabbed 16 hrs., 15 water.
	383	
G. Gibson:		
No. 1	40	Swabbed 11 hrs., engine trouble, 18 water.
No. 2	100	Swabbed 18 hrs., 300 water.
No. 3	...	Pumped 18 hrs., 75 water.
No. 4	182	Swabbed 15 hrs., 200 water, frozen line.
No. 5	107	Swabbed 18 hrs.
No. 6	...	Pulling 3-inch tubing to plug.
No. 7	150	Pumped 18 hrs.
No. 8	125	Pumped.
	704	
G. Hearn:		
No. 1	1	Pumped.
J. Ingram:		
No. 1	...	Pumped 98 water, 18 hrs.
No. 2	116	Pumped 18 hrs., 83 water.
No. 3	161	Flowed on air.
No. 4	1	Pumped.
No. 5	91	Pumped.
No. 6	...	Pumped 11 water.
No. 7	...	Pumped 6 hrs., fished rods, 80 wtr.
No. 8	32	Pumped.
	401	
N. Jackson:		
No. 1	13	Pumped, 5 water.
S. Pack:		
No. 1	41	Pumped.
No. 1-	23	Pumped
No. 2	4	Pumped.
No. 3	30	Pumped.
	98	
Peter:		
No. 1	...	Preparing to abandon.
No. 2	30	Pumped, 70 water.
No. 3	15	Pumped.
No. 4	5	Pumped.
	50	
M. Sango:		
No. 1	10	Pumped.
No. 3	925	On gas 16 hrs.
No. 6	...	Pipe reccovered, plug. and abd.
	935	
Seboka:		
No. 1	196	Swabbed 18 hrs., 235 water.
S. Sullivan:		
No. 1	5	Pumped.
Sullivan-Harjo:		
No. 1	3	Pumped.
No. 2	18	Pumped.

(Continued on Page 146)

Code and Exports Topics of W.P.R.A.

President R. B. Jones, Re-elected, Compliments Association on Year's Progress. Changes in Specifications Discussed

By W. T. Ziegenhain

ST. LOUIS, Mo., Mar. 12.—The budgeting of sales and the general acceptance of the open posted tank car market as the basis for all sales as suggested in the American Petroleum Institute's code was the plea of R. R. Irwin, president of the White Eagle Oil & Refining Co., in a report made as chairman of the marketing committee before the executive session of the Western Petroleum Refiners Association in St. Louis today.

The discussion of marketing problems featured the meetings, and the plans of the Export Petroleum Association, Inc., its limitations and purposes, as discussed informally by Gilbert Montague, vice president and general counsel, was of particular interest since Mid-Continent refiners are looking toward the export business of the future as justification for the gradual expansion of their operations in competition with coastal refiners as well as supplying an outlet for any surplus material that may present itself during the progress of the year, even though a close budgeting of production is observed.

President's Annual Report

R. B. Jones, president of the association, in his annual address chose to make informal comments regarding the successful year for refiners just passed and credited Howard Bennette, managing director, with having brought the refiners together to see that, through co-operation and the desire to make a profit rather than to see how much gasoline each could make, an organization has been perfected that is being patterned after by groups of refiners along the Gulf Coast, the Atlantic states and more recently in California. The branch of the association now having headquarters in Chicago under M. E. Griffith and established during the past year now has a membership representing approximately 90 per cent of the refining capacity of the central states, including Illinois, Ohio, Kentucky, Indiana, Wisconsin and Michigan.

Specifications Considered

A report of the manufacturers committee given by L. R. Crawford, president, Producers & Refiners Corp., briefly described the activities of the committee for the year and then he asked H. W. Camp, manager of refineries, Empire Oil & Refining Co., member of the committee and representative of the association on the advisory committee of the Federal Specification Board, to review the development of the question of changing the federal gasoline specifications to conform to the recommendations already made by the Government. Mr. Camp traced these developments and expressed the opinion that, with the data at hand after an investigation in other refining areas as well, it is not likely a change in the present U. S. Motor specifications will be favored except to add a maximum 10 per cent specification which will be satisfactory to both the refiners and natural gasoline manufacturers. At the same time it is expected the Government will adopt an additional set of specifications calling for a more volatile grade of gasoline for special uses and the name motor spirits has been suggested.

Mr. Camp expressed the attitude of the committee and the association and is leaving to attend the general meeting of the federal board and the American Petroleum Institute to be held in Washington March 15.

No definite recommendations were made in regard to the proposal to conduct a national advertising program for lubricating oils manufactured from Mid-Continent crude oils. C. C. Parlin, director of advertising for the Curtis Publishing Co., addressed the membership and explained the benefits accruing from co-operative advertising.

At the suggestion of R. R. Irwin, regional committees were appointed which will further investigate the feasibility of an advertising program. The report of these committees will serve as a basis for future action.

At the annual election, R. B. Jones, president of the Panhandle Refining Co., was re-elected president of the association for a second term. L. R. Crawford, president of the Producers & Refiners Corp., was elected vice president succeeding C. L. Henderson of the Vickers Petroleum Co. Other officers were re-elected.

President: Roy B. Jones, Panhandle Refining Co.

Vice presidents: L. R. Crawford, Producers & Refiners Corp.; M. J. Grogan, Louisiana Oil Refining Co., and George D. Locke, Barnsdall Refineries, Inc.

Managing director: Howard Bennette, Western Petroleum Refiners Association.

Secretary: A. V. Bourque, Western Petroleum Refiners Association.

Directors: H. T. Ashton, Lubrite Refining Co.; D. E. Buchanan, Chestnut & Smith Corp.; F. W. Burford, Crystal Oil Refining Corp.; Sheldon Clark, Sinclair Refining Co.; Walter Miller, Marland Refining Co.; L. R. Crawford, Producers & Refiners Corp.; H. A. Trower, Phillips Petroleum Co.; A. L. Derby, Derby Oil Co.; A. F. Garrett, Tidal Refining Co.; G. G. Woodruff, Shell Petroleum Corp.; John L. Gray, Shaffer Oil & Refining Co.; D. P. Hamilton, Root Refineries, Inc.; C. L. Henderson, Vickers Petroleum Co.; R. R. Irwin, White Eagle Oil & Refining Co.; E. D. Levy, Pierce Petroleum Corp.; Edgar J. Marston, Texas Pacific Coal & Oil Co.; L. B. McCammon, Transcontinental Oil Co.; O. L. Cordell, Independent Oil & Gas Co.; J. S. Cosden, Cosden & Co.

Directors (ex-officio): D. W. Moffitt, Mid-Continent Petroleum Corp.; P. M. Miskell, Empire Oil & Refining Co.; F. A. Pielsticker, Skelly Oil Co.; W. H. Isom, Sinclair Refining Co., and George Moore, Cosden & Co.

Treatment of Pressure Distillate

Blue Solution Described. Practical, Sensible Experiments Recommended Until Desired Results Are Obtained

By W. R. Hounsell*
Houston Oil Co.

The blue solution treatment of pressure distillate was originally developed and adapted to the requirements of a refinery running pressure distillate from its Dubbs cracking system. The crude oil charged to these units was Smackover heavy of 18 gravity, and contained 2.5 per cent sulphur and usually 1.5 per cent b.s. and water. There was no natural gasoline in the crude, the flashpoint being 225 degrees Fahrenheit open cup and the cold test was below zero.

After passing through heat exchangers, the crude, at a temperature of about 400 degrees Fahrenheit, was charged into the dephlegmators and thence refluxed to the fire tubes. The transfer temperature to the expansion chamber was averaged at 850 degrees Fahrenheit, and the plant pressure was 150 pounds per square inch. As the plant was operated to produce a strictly specified fuel oil, the amount of pressure distillate coming over was around 18 per cent.

Due to the production of hydrogen chloride, hydrogen sulphide and naphthenic acid in the process, corrosion of equipment and contamination of the distillate presented certain difficulties. This corrosion was minimized by complete insulation of all equipment containing vapors, by the introduction of a dilute ammonia solution into the distillate vapor line and by the substitution of brass condenser sections. The distillate was carefully kept in a neutral condition by manipulation of ammonia input and was further washed with water, in two successive washers, on its way to the tanks.

This preliminary washing of the pressure distillate was very essential, as it went a long way toward helping the subsequent treatment, and by eliminating most of the hydrogen sulphide, it saved corrosion of lines and tanks and enabled the men to work without fear of the toxic effect of the gas. If the hydrogen sulphide were allowed to remain in the distillate it would be partially oxided by the sulphuric acid treatment, and elementary sulphur would be dissolved by the oil; which fact would make the corrosion test on the subsequent gasoline very doubtful, if not unacceptable.

*Manufacturers meeting, Western Petroleum Refiners Association, February 13.

When confronted with the absolute necessity of producing from this pressure distillate an antiknock gasoline with new navy distillation, sweet to the doctor test, 25 color, corrosionless, sweet odor and stable to direct sunlight, it can readily be realized that a special treatment is necessary.

Treating Methods

The best known treating methods in general plant operation would give some, but not all, of the requirements for the final product. These methods were the acid and doctor, doctor, acid, and doctor, with and without excess of litharge and sulphur, the hypochlorite, sodium and calcium, strongly and slightly alkaline, the acid centrifuge and contact filtration, and the vapor contact methods. The Edeleanu, sulphur dioxide method was considered impracticable in this case.

It was disconcerting to discover that the good old standby "doctor solution" simply could not treat the pressure distillate to make the type of gasoline required, and as the experimental work with plumbite solutions became more and more intricate it also became more and more evident that there were certain unusual sulphur compounds present in the raw distillate which refused to dissociate in the presence of sodium plumbite solution. Fully realizing that the distillate contained unusually high percentages of cyclic compounds and unsaturated chains, it was decided that any large amount of concentrated sulphuric acid would be out of the question as a means of removing the majority of the undesirables, although some acid would be needed to remove the diolefins and other gum forming compounds. On account of the instability of the freshly cracked distillate, an unstable compound containing a halogen such as chlorine or bromine, although acting as a beneficial oxidizing agent, forms additional products which in turn form acids during combustion, and therefore do not make desirable reagents for treating.

This treating problem resultantly resolved itself into the task of finding an alkaline solution of a fairly unstable metallic salt, which would react with the combined sulphur of the distillate to better advantage than could be an alkaline solution containing a lead salt, such as "doctor solution."

Many chemical terms are herein being used very loosely for the sake of clarity.

Available Metals

Among the available metals, judging from their best known reactions, silver, copper, mercury, arsenic and antimony seemed to have a greater affinity for combined sulphur than had lead. In addition, ammoniacal solutions of silver and copper react with odoriferous acetylenes, forming salts which are insolubles in the oil.

Copper was finally chosen as the metallic element needed in the desired treating solution, and various alkaline solutions of this metal were experimented with. The solution that seemed to be the most satisfactory from all angles was cupric ammonium hydroxide, made by pouring a cold solution of copper sulphate into a cold solution of sodium hydroxide and by addition of slight excess of ammonium hydroxide, or until the gelatinous precipitate of cupric hydroxide was taken into solution, forming the characteristic deep blue coloration.

After the desired product had been made experimentally by the judicious use of the chemicals and manipulation of the subsequent fractionations, the adaption of the entire process to the commercial scale of operation presented some additional problems, which were chiefly mechanical and soon remedied.

The copper sulphate was dissolved in hot water in two small cypress wood tanks elevated above the height of the caustic tank, was allowed to cool, and the solution run by gravity into the caustic soda solution to a predetermined gauge. The 26 degree ammonia was delivered from the drum into the mixture by compressed air displacement and through a spray at the bottom of the mixture until the whole mass changed to a deep blue color and the odor of ammonia became noticeable. The final solution was then run by gravity to the blow-cases for use in the treating system.

The pressure distillate, after having been produced by the cracking units, was washed with two successive water washes. One of the washes was performed by means of a water spray inside the rundown line farthest from the tank, and the other in a vertical scrubbing column

(Continued on Page 147)

Discussions of Engineering Problems

EDITED BY R. VAN A. MILLS, PETROLEUM ENGINEERING EDITOR

CROOKED HOLE PROBLEM

Discussed by Harry Pennington of San Antonio, Tex.

All the information on the crooked hole problem brought out in these pages has been constructive, covering both the mechanics and the economics involved. Vertical wells can be pumped with rods and tubing with far less lifting cost than crooked holes, and the flush wells of today are settled producers of tomorrow. If the lifting cost by pumping is too high, abandonment is likely, even though the percentage of recovery is very low under present methods.

Naturally, until a well has been surveyed for verticality, no one can say just how crooked it is, or whether it is crooked at all, but when the well settles down to pumping, and the rods begin to wear against the tubing and the tubing collars wear against the casing so as to require replacement, then we know the hole is crooked. Furthermore, when holes are worn through casing by line cutting or other causes, water is likely to be admitted, and, unless the well is a fairly large producer (especially if it is a pumper) the cost of repair may exceed the value of the well. The writer is firmly of the opinion that no well over 2,000 feet deep has ever been drilled truly vertical. Many surveys indicate that deviation in wells that are more than 2,000 feet deep is universal, no matter whether the formations are hard or soft.

The troubles from crooked holes are many. During drilling, any deviation from vertical sets up additional friction which tends toward twistoffs; deviation rubs the pipe harder against the well bore and thins the pipe wall faster, thus shortening its period of useful service. Deviation necessitates additional drilling, thus increasing both the drilling cost and the casing cost. It upsets all geological calculations for subsurface structural mapping and causes trouble in making subsurface correlations. It is responsible for many of our common drilling, casing and production troubles, such as fatigue and failure of drill pipe, twistoffs, fishing jobs, hang-ups in running casing, collapsing of pipe, failure to properly set up casing (especially for sizes larger than 6⅝-inch), failure to properly seat casing, channeling and uneven thickness of cement around casing unless special precautions can be taken to center the casing in the hole. Among the most serious operating troubles resulting from crooked holes may be mentioned excessive wear and failure of sucker rods, wear on tubing and casing, and increased lift costs.

Causes

The causes of crooked holes are many. Spudding in gumbo may deviate the hole. In the writer's work, gumbo is never spudded, but is drilled at high speed, in which only light weights on the bit are used.

Inclined formations tend to deflect the bit, especially if too heavy weights are imposed. Inclination is indicated by the bit point, or roller, striking only on one side. If the bit goes down striking on one side, we know that deflection is taking place. Lessening the weight on the bit and perhaps substituting another type of bit prevents this.

Flint boulders or kidneys in lime rock will deflect the bit and the same remedy of lightening the weight on top and perhaps substituting another type of bit should prevent deflection of this character.

Fishtail bits with one point and edge of the bit projecting further down than the other will deflect the bit. Dressing bits truly with the points in a line at right angle with the axis eliminates this trouble.

In formations of any kind, excessive weight on the bit tends to deflect the hole.

Small drill pipe in a large hole sets up deflection as indicated by surveys.

Surveys

Field methods of survey include the acid bottle; photographic methods of Oehman, Owens, Anderson and others; the gyroscopic compass method of Martenssen; the clinophone of Briggs; the Kiruna method of electrodeposition of copper to indicate inclination by the upper line of deposition; the gelatin method of MacGeorge, and the plummet marker, a purely mechanical device of the writer, requiring a single round trip of the drill pipe to bottom for making a complete survey from top to bottom.

In all of these methods, the angle of deviation is indicated at intervals, and not continuously, so that the nearer together the readings, the more accurate the survey. With a set of readings, calculations may be made with an accuracy dependent on the instrument itself, some types being on the approximate order, while others show deviation to within 4 minutes (one-fifteenth of a degree.)

Orientation to determine the direction of deviation is quite important in that if a well is to be straightened, a whipstock may be set and oriented so as to deflect the hole toward the true vertical. Orientation is accomplished in several ways; lowering the pipe without turning is one successful method, and another is the gyroscopic compass method, using the compass of Sperry, which does not depend upon terrestrial magnetism. The magnetic needle for orientation is not successful because of the presence of steel pipe and local attraction.

The cost of making a continuous survey of a well ranges from 3 to 10 cents per foot per survey, depending upon the accuracy and continuity of readings required. For instance, if a survey is made of a 4,000-foot well, with readings each 100 feet, there are 40 readings; but if readings are taken each 10 feet there will be 400 readings, which establishes the difference in cost of continuous surveys. The writer has found that readings at each 60 to 100 feet afford the required information as to well bore deviations.

Allowable Deviation

The amount of deviation permissible has been subject to debate. Ten degrees is the maximum being used in some fields. If the bore hole deviates 11 degrees, it must be backed up to where the deviation is below the maximum, and then redrilled from that point down. In some cases, the hole is backed up to where only 5 degrees deviation is shown, and then redrilled from that point.

Penalties are being applied for crooked holes. Such a penalty is not in the form of a reduction in the drilling price per foot, but requires the hole to be plugged back and redrilled at the contractor's expense. If a second backing up is necessary, its cost is paid by the operator. In one case a drilling contractor was required to plug back 1,500 feet, three times, before the hole was acceptable. In this work the acid bottle method of survey was used and readings were taken for each 250 feet of hole.

Conclusion

Unquestionably, excessive hurry to get wells down to the productive sands has been in a large measure responsible for crooked holes. Drilling contractors have secured contracts because of their reputations for speed in making hole with big rigs and heavy pipe. Today in Oklahoma some contracts are being awarded upon the ability of the contractor to make a reasonably straight hole. On this basis, the price per foot for drilling has been increased $1, to compensate for the additional time required to drill a straight well. In this work it is customary to properly control the weight on the rock bit.

The fact that surveys show the upper part of many holes to be the most truly vertical, points to excessive weight on the bit as being a prime cause of deviation. To lessen the weight on the bit in relatively hard formations means drilling more slowly. The writer has offset this in fishtail drilling by designing a high-speed rotary in which the speed of a 15-inch fishtail is held at from 125 to 175 revolutions per minute. Smaller bits are run at higher speeds. In this kind of drilling, the permissable weight on the bit is far less than at lower speeds. No damage has resulted. If the holes were crooked the pipe would surely whip in two.

Straighter holes can be and should be drilled and the time will probably come when penalties will be imposed universally for drilling crooked holes. It is already evident that the universal application of penalties for crooked holes drilled under contract is one of the best and surest methods to insure the drilling of straighter holes.

REMARKS BY EDITOR

Mr. Pennington has sounded several of the keynotes in the present crooked hole situation.

So far as drilling is concerned, this problem is rapidly becoming what might better be called "the straight hole problem."

It is a problem of how to drill straighter holes.

Drilling Straight Holes

Developments along these lines are piling up so fast that it is difficult to keep track of them. Holes that for all practical purposes are considered straight are now being drilled with comparative ease and certainty by several of the larger companies operating in the Seminole district, Oklahoma. One of these companies has drilled seven wells on one lease. They are all more than 4,000 feet deep. Five of them were drilled by ordinary rotary methods with modern, high-power equipment but without special effort to make them straight. Two of them were drilled with similar equipment but with the avowed purpose of making them straight.

In this "straight-hole work" the weight on the rock bit was at all times limited to 17,000 pounds. High speeds of rotation were used to make hole rapidly instead of placing excessive weights on the bit. All five holes drilled by ordinary methods were crooked whereas the two drilled by "straight-hole methods" were straight. Their maximum "off vertical angle" was less than 1½ degrees and their maximum vertical correction was less than 1 foot. One well had a vertical correction of less than half a foot.

These results are not mere accidents. Most, if not all, of the companies are bottling their wells by improved methods. Several of them require crooked holes to be plugged back and redrilled. They are also offering bonuses for straight hole. At least three of the large companies have reached the point where they express confidenec that they can drill straight holes in the Seminole district.

The next step is to formulate a code of rotary drilling practice that will insure so far as possible, the drilling of straight holes. Two of the larger companies are already formulating their own rotary drilling codes for this purpose, and several of them are exchanging information upon drilling practice and vertical corrections. No one in his most imaginative mood would have predicted such progress as this eight months ago when The Oil and Gas Journal commenced intensive work upon the problem.

So much for Oklahoma. It will be interesting to learn of the most recent progress toward drilling straighter holes in the Gulf Coast, California and Rocky Mountain areas through the papers and discussions to be presented at the forthcoming meetings of the American Association of Petroleum Geologists in Fort Worth, Tex., on March 21 to 23. At that time the subject of crooked holes will be opened for discussion with a paper by Dr. F. H. Lahee of the Sun Oil Co.

Articles on Crooked Holes

Various phases of the crooked-hole problem have been discussed in The Oil and Gas Journal since oil producers first began to realize the importance and magnitude of the question. Among these articles are the following:

"Underground Survey of Deeper Well," by Alexander Anderson, September 9, 1926, page 29.

"Crooked Holes Cost Industry Vast Sum," by J. L. Dwyer, August 23, 1928, page 29.

"Crooked Holes Discussed by Engineers," by R. Van A. Mills, August 23, 1928, page 30.

"Discussion of Crooked Hole Problem," by R. S. Cartwright, Ponca City, Okla., September 6, 1928, page 39.

"The Crooked Hole Problem," by W. R. Cummings, Breckenridge, Tex., September 13, 1928, page 41.

"Importance of Crooked Hole Problem," by H. B. Goodrich, Tulsa, November 15, 1928, page 165.

"Crooked Hole Problem Being Studied," by H. B. Goodrich, November 15, 1928, page 38.

"The Crooked Hole Problem Further Discussed," by W. R. Martin, Long Beach, Calif., November 15, 1928, page 165.

"Discussion of Crooked Hole Problem," by L. J. Black, Beaumont, Tex., November 29, 1928, page 30.

"Research Provinces in Crooked Hole Problem," by F. H. Lahee, November 29, 1928, page 30.

"Torque Indicator Problem Discussed," by J. T. Haywood, Ploesti, Rumania, November 29, 1928, page 30.

"Crooked Holes," by Frank Redick, Iraan, Tex., January 24, 1929, page 34.

"The Question of Torque in Crooked Holes," by O. B. Goldman, Los Angeles, Calif., January 24, 1929, page 34.

"Crooked Hole Problem," by G. T. Chupp of Ploesti, Rumania, February 7, 1929, page 104.

"Crooked Hole Problem," by Harry Pennington, San Antonio, Tex. Under "Discussions of Engineering Problems" in this issue.

CROOKED HOLE DATA

In a paper presented before the Tulsa Geological Society on the evening of March 4, 1929, D. R. Snow of the Barnsdall Oil Co. presented the results of acid bottle measurements in 90 wells in the Greater Seminole district. The amount of hole surveyed was 377,719 feet. The results are shown in the accompanying table:

RESULTS OF ACID BOTTLE TESTS
In Greater Seminole District

Vertical correction in feet	No. of wells	Percentage of total number of wells
Less than 25	20	22.22
25 to 50	9	10.00
50 to 100	28	31.11
100 to 200	24	26.67
200 to 300	4	4.44
Over 300	5	5.56
Total	90	100.00

Cost of Crooked Holes

Mr. Snow estimated that 200,000 feet of unnecessary hole had been drilled in the Greater Seminole district involving a loss of approximately $2,000,000 in this one district for unnecessary drilling, to say nothing of the additional losses from consequent drilling and production troubles and the increased wear and tear on equipment.

Vertical Corrections

Further data along these lines were presented by C. V. Milliken of the Amerada Petroleum Corp. and A. A. Lang-

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Operator Discusses Overproduction

Viewpoint of the Smaller Company Given on Conditions Resulting From Development Program Here and in Venezuela

By Roy M. Johnson*

As an independent operator whose operations for the past 15 years have been confined principally to southern Oklahoma, I have been most intensely interested in the general problems of overproduction that set in late in 1926. The more I study and read of the situation, the more the fact comes home to me that the chief responsibility for our continued and persistent overproduction problem lies principally with the major operators. Bearing this statement out, is an article in the annual number of The Oil and Gas Journal published on January 31, in which it is stated that in 1926, 90 per cent of the wildcat wells in Oklahoma were drilled by small independent operators, whereas in 1928, 90 per cent of said wildcat wells were drilled by the major companies and leading independent producers, leaving but 10 per cent of wildcatting activity to the smaller operators.

More and more it is becoming self-evident that we have entered a permanent period of flush overproduction as long as these larger interests continue to open new producing sections and horizons. Some success has been had in various fields in limiting drilling activities or in prorating production in newly developed fields. But what avails it as long as new fields are being continually brought in or new and deeper horizons are being constantly opened up, even though they be followed by efforts to prorate production and slow up actual drilling? For every strike in new territory is always followed by frenzied leasing and wildcatting activity in the surrounding country, as witness the recent strikes in Oklahoma County, Oklahoma, and in Sedgwick County, Kansas. For it is not so much the new production that is actually opened up by the first field, as it is the fact that a number of other strikes are almost sure to follow in the same general territory. And the new and deeper sands that are constantly being opened up in older fields immediately spur producers in similar old fields to prospect the deeper horizons in their fields. For example, witness the deeper drilling that has occurred and is still going on around the old salt dome fields of the Gulf Coast, following the discovery of the deeper sands at Spindletop, and the orgy of deeper drilling that is now taking place in the older California fields following the sensational results obtained from drilling to deeper sands at Signal Hill.

Southern Oklahoma's Case

Up until now southern Oklahoma producers have tried in every way to hold back unnecessary drilling activities. But, if it is true that the industry is facing a continued period of flush overproduction, does it not behoove us operators to make an effort to participate in our share of such flush cheap production?

Old, settled pumping wells, no matter how flat the decline curve, yield less and less net profit under present crude prices. I know of many operators who owe for borrowed money. They realize that some day these notes must be paid. They get tired of continually having to go into the bank with their hats off, and repeat the old story of wanting to renew their paper. They, too, would like to have cheap flush production, so that they also might go in and interview the bank president, and, not only forget to take their hats off, but be privileged even to put their feet upon the banker's desk.

We know that Carter County alone has produced over 250,000,000 bbls. of oil, every barrel of which has been produced above the geological horizons that have yielded and are continuing to yield the hundreds of millions of barrels at Greater Seminole. No drilling here has yet been as deep as to the Wilcox sand, and our geologists tell us that there is every chance of these sands being present and found productive. With our own eyes we see these thick, porous sands outcropping on the south side of the Arbuckle Mountains and dipping down into the country to the south where lie our many present producing folds.

Seeking Advice

We operators are holding and paying rentals on many thousands of acres located on untested structures in Southern Oklahoma, where core-drilling exploration has furnished subsurface proof of actual structural conditions. How much longer shall we continue to pay rentals on these leases and renew such as expire from time to time? If we face the long overproduction situation that we are continually reading about, are we not foolish in not also joining the ranks of the many in going after these deposits of oil while the going is good? Frankly, we are seeking advice.

In my judgment the principal causes of the present deplorable condition of our industry are as follows:

1. Wildcatting in new areas and deeper drilling in present producing fields.
2. The air-lift, principally as applied in the Seminole region.
3. Continued development of South American fields, resulting in ever increasing imports.
4. Competition of natural gas with fuel oil, largely as a result of activities of the past few years.

Wildcatting and Deepening Campaign

Let us first examine the recent principal activities of some of the major companies, both Standard and independent.

First, I want to say that it is my firm belief that the Standard Oil Co. of New Jersey, through its president, W. C. Teagle, has done more, both by example and precept, to try to bring about a correction of our present troubles than has any other influence in our industry today. Time was when the powers that be in the oil industry cut or slashed prices as they saw fit, without giving the public or the members of their own industry any inkling as to the reason for such action. Very early in the year 1927, and long before a great majority, especially of the smaller operators, realized the production flood that was already in the making, Mr. Teagle broadcast a warning of what would follow if steps were not immediately taken to bring production in hand. These warnings were followed shortly by a series of price cuts, thus inaugurating a reign of low prices that has continued practically with little change to this good day.

Mr. Teagle's two operating subsidiaries, the Carter Oil Co., operating in

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*Discoverer of the Healdton Field in Oklahoma.

Changes in Standard of Indiana

Four New Directors Elected at Annual Meeting. Colonel Stewart Retires After 22 Years Service

Four new directors were elected to the board of the Standard Oil Co. of Indiana and important changes were made in the executive staff of the company at the annual meeting held at Whiting, Ind., March 7.

William M. Burton, former president of the company, who retired three years

Dr. R. E. Humphreys

ago, was elected a director succeeding Col. Robert W. Stewart, who also retires as chairman of the board. Doctor Burton was actively identified with the Standard company for a period of approximately 40 years previous to his retirement. He is widely known in the refining branch of the oil industry as an executive and the inventor of the Burton cracking process, the first process to be widely installed at refineries. Since his retirement he has spent considerable time in Europe. No announcement has been made as to whether he will be elected chairman of the board.

Melvin A. Traylor, president of the First National Bank of Chicago, was elected a director of the company succeeding L. L. Stephens, general counsel of the company. Mr. Stephens will continue as general counsel. Gentry Cash, manager of the Whiting, Ind., refinery of the company and Thomas S. Cooke, manager of refineries for the Pan American Petroleum & Transport Co., a subsidiary company, also were elected to the board of directors. Both Messrs. Cash and Cooke have been connected with the Indiana company for several years in the refining branch. Mr. Cooke during the

Dr. G. Cash

past year has had charge of construction at the refinery which the Pan American has practically completed at Aruba, Dutch West Indies. Previously he was manager of the Rocky Mountain division of the Midwest Refining Co., another Indiana subsidiary, and previously to that was employed at the Whiting, Ind., refinery.

Doctor Cash has had a steady advancement in the refining branch of the company and for some time has been in charge of refinery operations at Whiting, the largest of the company's refineries.

Mr. Traylor previously was not connected with the Indiana Standard. He has been engaged in the banking business, his early experience being obtained in small banks located in Texas.

Dr. R. E. Humphreys, one of the oldest employes of the Indiana company in point of service, was re-elected to the board of directors and was also elected vice president in charge of manufacturing, succeeding Beaumont Parks who died recently.

Other officers re-elected were: Edward G. Seubert, president and director; Allan Jackson, R. H. McElroy, E. J. Bullock, vice presidents and directors; C. P. Bark-

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T. S. Cooke

Earlier Periods of Overproduction

Accumulative Effect From Burkburnett to Seminole. Gas Lift Contributes to Total. Curtailment Progress

By Ernest R. Lilley, Sc. D.
Associate Professor of Geology at New York University

To understand the situation created by the heavy yields and greater potential supplies found in the great flush pools of Seminole and West Texas, the reader must first understand the conditions within the oil industry before their names were known. At the close of 1926, when the possibilities of Seminole were just beginning to indicate themselves, stocks of crude and refined oils in the United States totaled 519,516,000 bbls. At the close of May, 1928, just before the effects of the series of the most successful and far-reaching shut-down and proration agreements the oil industry has ever witnessed caused their decline, the amount of oil in storage had reached 613,386,000 bbls. No one will depreciate the seriousness of the addition of nearly 100,000,000 bbls. to storage in this short interval. However, the addition of even this large quantity would not alone have been sufficient to bring the debacle of an industry which delivered to consumers during the first six months of the past year no less than 475,467,000 bbls of its products.

Accumulative Overproduction

When stated in day's supply, the stocks of oils in the United States were equal early last summer to the needs of 235 average days. At the beginning of 1927, stocks were equal to the needs of 208 days. The two figures indicate that the production of the period intervening was far in excess of the quantity needed to maintain steady operation of all of the divisions of the oil business. At the close of 1920 oil in storage amounted to 221,460,000 bbls. Consumption and exports during the year were 442,460,000 bbls. No oil man would consider the total of oil in storage at the close of 1920 adequate to meet the demands of refineries and consumers for a guaranteed supply today. However, the stock figures for the close of 1920 show a total equal to only 183 days supply at the rate of consumption of that period. It is evident that the additions to the storage total made between 1920 and 1927 did just as much to create the tremendous burden of stocks that the industry collapsed under in 1927 as the overproduction of that year did. It is not possible to speak of the production of Seminole and the threat of West Texas as comparable with the famous straw that broke the camel's back. Yet, it is only justice that we lay some portion of the blame upon the Panhandle, Spindletop, Tonkawa, Long Beach, Santa Fe Springs, and other pools whose flush yields created the unstable conditions that made the industry incapable of digesting the oil of Seminole.

During the year of 1920 substantial amounts of oil were placed in storage. However, such additions were considered necessary because of the depleted condition of stocks at the close of the war and the sudden expansion of production and consumption in response to increased use of the automobile. Numerous predictions of an impending shortage of oil urged purchasers to make connections to new wells wherever possible and store oil in anticipation of the rise in prices that was expected. As the yields of the wells in the United States showed no signs of diminishing and as the only restriction on Mexican production appeared to be that of lack of transportation facilities, the cloud of the exhaustion bogey vanished. From the first of January, 1921, to the middle of June, price cuts followed one another in rapid succession, the quotation on Oklahoma crude falling from $3.50 to $1.00 a bbl.

Burkburnett

The increased production of 1919 and 1920 that had enabled the industry to meet the increased demand had come from moderate sized pools scattered throughout the country. The chief center of increased production had been North Central Texas, but none of the pools of that area, with the exception of Burkburnett, could be considered as of first magnitude. This pool attained a yield of 108,000 bbls. daily for a short time under the influence of townlot drilling. If the wildcatting campaign inaugurated at the close of the war had resulted only in the discovery of pools having a maximum yield of 40,000 to 50,000 bbls. daily, the overproduction of the next few years would probably never have occurred. Pools of the size of Desdemona and Homer, with peaks of 45,725 and 67,484 bbls. daily respectively, would have had little effect upon the price structure of the industry of the past few years.

While oil was going into storage in 1920, the sudden collapse of the price structure of the oil business in the first half of 1921 was undoubtedly due as much to the general slowing down of business that marked the end of the post-war boom as to any discoveries on the part of producers. Hull and West Columbia brought a moderate increase in the production of the Gulf Coast. The Breckenridge district in North Texas maintained a high average yield throughout the year. The opening of a number of small pools in Oklahoma increased the total for that state, but the increase was largely balanced by a decline in Kansas. Moderate increases were reported in California and the Rockies. The famous Eldorado Pool of Arkansas attained a peak production of 66,984 bbls. daily in August, 1921, but its yield was only slightly more than the decline registered by the adjacent pools of northern Louisiana.

Mexia

During the summer and early fall of 1921 it appeared that the market was going to catch up with production, especially as imports from Mexico were temporarily lowered by difficulties between producers and the government. Prices responded immediately. Oklahoma-Kansas grade going to $2 a barrel by November. However, elements of weakness were apparent at every side. In East Central Texas, the Mexia Pool, the first of the great discoveries along the Mexia-Luling fault zone, was announced. Located in an easily reached area and developed under competitive conditions, the yield of the pool rose from 1,000 bbls. daily on October 15 to 141,065 bbls. daily in the January following. However, as the decline was almost as rapid as the rise, the pool had little direct effect upon the price structure.

Burbank

The most important single discovery since Cushing was the finding of Burbank in 1920. As the discovery well was located on Osage land and as most of the surrounding acreage was still in the hands of the Osage Nation, its full possibilities were not realized until nearly two years later. In 1922 its production together with the yields of a number of pools in Creek, Okmulgee and adjacent counties in Oklahoma prevented any strengthening of the price structure in the Mid-Continent. The Smackover Field was discovered in July, 1922, and attained an average production of nearly 100,000 bbls. daily before the close of the year. However, it produced an oil of fuel character. In addition, the history of El Dorado and Haynesville, Louisiana, a pool that had reached a maximum yield of 87,794 bbls. daily in March, 1922, indicated that Smackover might be expected to decline very rapidly. Despite the abundance of oil stocks in the Mid-Continent area had increased approximately 50,000,000 bbls. during 1922. The decrease in the shipments of oil from Mexico toward the close of the year resulting from the invasion of salt water led to a series of increases in prices early in 1923.

However, Smackover failed to decline, maintaining a yield of more than 100,000 bbls. daily throughout all of 1923 and well into 1924. In addition the light oil production of Burbank continued to rise, especially after the pool was extended into Kay County. Tonkawa, another light oil pool in the same county, had been located in 1921. Its development on a large scale began late in 1922. In the following May its yield was 115,000 bbls. a day.

California's Flood

Great as the increase in production in the Mid-Continent area was, the level of prices could probably have been maintained if that section had not lost one of its principal markets, the Atlantic Seaboard, to an unexpected competitor, California. Huntington Beach, the first of the deep gusher pools of the Los Angeles Basin, was discovered in 1920. The upper sands were exploited first and proved to be of minor importance. The last half of 1922 saw the development of a deep horizon. This proved to be of unusual richness and thickness, the rise in production continuing until a peak of 117,000 bbls. a day was attained in March of 1923. A few months after the discovery of this pool came the finding of an even more sensational one, Long Beach. A portion of the Long Beach pool was within the residential area known as Signal Hill. The town-lot drilling that followed the discovery in this area surpassed anything that had occurred in the past, even exceeding the rapidity of drilling that marked the development of Spindletop and Burkburnett. The productive area amounted to only 1,200 acres and the main horizon of that period was at a depth of 4,000 feet. Yet so rich was the horizon, and so closely spaced were the rapidly drilled rotary holes, that the production passed the 100,000 bbl. mark before the close of 1922 and continued to increase until it reached a peak of 284,000 bbls. a day in October of 1923.

It appeared that the bounty of nature in California had no end. After the completion of several unsatisfactory tests, the existence of a major pool at Santa Fe Springs was proved in 1921. While the larger size of the individual holdings prevented the area from becoming the Mecca of promoters to the extent that Long Beach had become, the divisions were small enough to cause an intensive offset campaign to develop. In December, 1922, the yield reached 90,000 bbls. It continued to rise until August, 1923, when a daily yield of 340,000 bbls. was attained.

The oil from these pools was of much better quality for refining than that from the older valley pools. The lease

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This is the fifth article in a series written especially for The Oil and Gas Journal by Ernest R. Lilley, Sc. D., associate professor of geology at New York University, leader of the oil executives' course at the Wall Street division of the university, and author of "The Oil Industry," and "The Geology of Petroleum and Natural Gas."

MOST INTERESTING CONVENTION OF PETROLEUM GEOLOGISTS PROMISED

The largest and most interesting convention ever held by the American Association of Petroleum Geologists will open in the Texas Hotel, Fort Worth, Thursday of this week and close Saturday, March 23, according to the expectations of chairmen of committees in charge of arrangements for this annual meeting. The largest attendance at any convention of the organization in the past was that in Tulsa in 1927, when 2,000 visitors were registered. There are several reasons for expecting this attendance record to be broken at Fort Worth, in the belief of R. S. McFarland, Twin State Oil Co., Tulsa, president of the association, and J. P. D. Hull, Tulsa, business manager. One is the natural growth of the association. Another is the fact that the convention will be held in the state which has more petroleum geologists than any other. In addition to these is the fact that the program prepared promises discussions of high value and entertainment features of exceptional attractiveness.

R. S. McFarland

Many Besides Geologists

Besides members of the association there are indications that many land men, production men, wives of members and others interested in various phases of the convention will be present. Special coaches will convey geologists from different parts of the country. A special train is planned for the areas centering about Tulsa and Bartlesville.

One of the most interesting discussions of the convention promises to be that in connection with the paper on "Crooked Holes in Oil Field Development," by F. H. Lahee, chief geologist for the Sun Oil Co., Dallas, Tex. Mr. Lahee has made a special study of the crooked hole problem. It is understood prepared discussions will be presented after the reading of Mr. Lahee's paper and that these will be followed by general discussion of this question which probably has evoked more interest than any other in oil field development in recent months.

A. W. McCoy, of Ponca City, Okla., is chairman in charge of a group of papers dealing with the stratigraphy of the Permian Basin of the Southwestern

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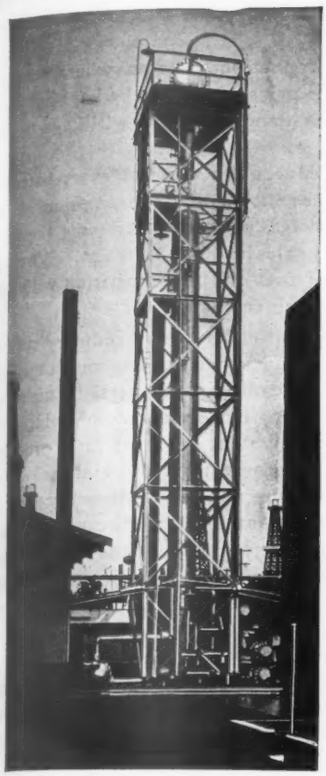

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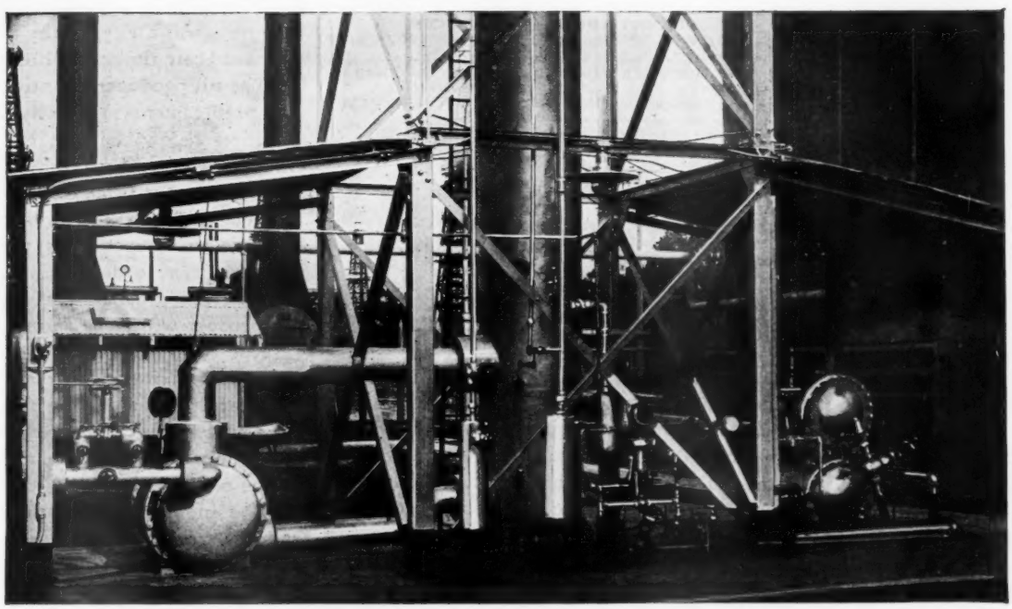

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Published Weekly by
THE PETROLEUM PUBLISHING COMPANY
114-116 West Second Street
TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle

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REAL PRORATION

The meeting of regional committees appointed by President E. B. Reeser of the American Petroleum Institute which will be called to order by Chairman R. C. Holmes at Houston, March 15, will have an unparalleled opportunity to do something definite about overproduction.

These committees have been charged with the duty of making a survey of production and consumption in their respective areas and other details necessary to a clear understanding of the facts about overproduction.

But with these facts before them the question will still simmer down to the simple proposition of making production and consumption meet and match.

The consumption for the present year can be calculated to a fraction of one per cent. The problem is to keep production to within that figure.

It should not be difficult, for instance, to take the production by states, or districts, say a year ago, and the production today, showing where the present overproduction is coming from, and then prorate the necessary reduction to bring production in line with demand.

Overproduction of oil is not a local proposition. It is a world problem since its effects are felt in the oil market everywhere.

In comparing production in the United States with production a year ago there should be taken into consideration also the increase in production in Venezuela which also has contributed to the general overproduction situation in the United States and elsewhere.

If it were decided to have a prorated reduction in American fields according to the overproduction this year compared with last year, it is reasonable to suggest a similar action in regard to Venezuela which has increased its production nearly 150,000 barrels a day.

American production March 2 this year was 340,000 barrels a day larger than in March, 1928.

Of this increase about 185,000 barrels a day came from California; 60,000 barrels from Oklahoma, and 95,000 barrels from West Texas.

The principle is clear. Working out the proportionate reductions should not be difficult if the regional committees have completed the surveys allotted to them.

Dissent may arise from natural reluctance to make what may seem a present sacrifice for future benefit but a thorough understanding of the whole situation should prove that no real sacrifice will be required.

So long as there is any overproduction, from anywhere, whether in American or foreign fields, the price of oil will be kept below its real value, and every producer, at home or abroad, will have to bear part of that loss.

Every barrel overproduced reduces the value of every barrel of oil on the market. Experience has shown that consumption will not so much, from year to year, regardless of price. Reducing the price does not increase the volume of sales enough to count. What increase there may be in the use of fuel oil, in competition with coal and not as a preferred product, is an economic loss.

There is neither incentive nor reason for the oil industry cutting the price of its products because buyers will buy so much anyway and no more. Yet year after year the oil industry persists in cutting the price of its products by producing more than can be sold.

When overproduction forced down the price of farm products Congress was all sympathy and government bureaus and spokesmen devoted their time to telling the farmers to reduce their acreage.

The oil producer is entitled to the same advice because his present predicament is exactly the same. He finds the price of his products below the cost of profitable production because he produces more than the market can absorb, and when there is a surplus of anything the price goes down.

Congress and the Government urged the farmers and the cotton growers to restrict their planting in accordance with the market demand because depression in the farming and cotton industries affected the prosperity of the whole country. The country could not prosper while the farmers were suffering.

Nor can the country have its full measure of prosperity while the oil producing industry is in the trough of depression. It is only necessary to consider the billion-dollar demand for oil industry supplies which cuts so large a figure in the business of the iron and steel industry and the many other industries which sell equipment to the oil industry.

The industry whose product value is the third largest in the country cannot be depressed without materially affecting the general prosperity.

Modern ways of thinking have thoroughly convinced us that a prosperous business or community must depend upon prosperous customers. If the Chinese were as prosperous as Americans we could sell them as much. The world was anxious for Europe to regain its feet so it could buy more.

Similarly the whole country is interested in the oil industry getting a fair price for its products and getting out of the present depression. If the country is to be benefited by the greater buying power of the farmer getting fair prices for his products it will be just as true of the oil industry and all those industries and communities affected by the condition of the oil business.

So, if the regional committees meeting at Houston tackle the problem boldly and courageously and decide to recommend the reduction of production in line with demand it will be for the benefit of not only the oil industry but the whole country.

The oil industry is producing too much oil.

As a consequence oil is being sold for less than it is worth.

Let the industry produce only as much oil as is needed and get what it is worth.

This will be no restraint on production. What is needed is a restraint on overproduction of an irreplaceable natural resource.

The known reserves are an assurance against any manipulated inflation of price. Competition is too sharp to tolerate it.

What is the alternative other than continuing helplessly to give away oil for less than it is worth and less than our customers will cheerfully pay for it until some indefinite day when exhaustion of our supply forces up prices?

The Houston meeting has a chance to do something besides drift. It should show that the oil industry has effective leadership.

But it will require whole-hearted support, as near 100 per cent as can be obtained. Whatever it falls short of that will react against everyone in the industry.

Along the trail of the lonesome pines
S. R. Dresser Mfg. Co.
Bradford, Penna.
DRESSER
COUPLINGS
DOMINATE

SERIOUSNESS OF OVERPRODUCTION SITUATION STATED BY W. N. DAVIS

The seriousness of the present overproduction situation is emphasized by W. N. Davis, vice president of the Phillips Petroleum Co. and president of the Mid-Continent Oil and Gas Association, in the following letter which he sent to E. B. Reeser, president of the American Petroleum Institute:

"May I direct your attention to the present phases of the economic situation of the oil industry as indicated by the figures in the accompanying tabulation? The situation is grave, and I think probably worse than the leaders of the industry realize. Perhaps, as president of the Institute, you can take some action which will give them a better realization of the true picture and thus induce them—if not for the welfare of the industry, at least in their own selfish interests—to take every effective step within their power to ameliorate the situation.

"You will note that during January, stocks of petroleum increased 6,466,000 bbls., and gasoline stocks increased 7,582,000 bbls. Decreases in other products brought the total net increase to 11,416,000 bbls., or 368,000 bbls. a day. The increase in stocks of crude is serious enough, but the unprecedented increase in stocks of gasoline is shocking—particularly as it seems to indicate that the measure of sane self-control which was attained last year has been abandoned. Daily runs to stills were 315,000 bbls. greater during January, 1929, than for that month in 1928. From September 30, 1926, to January 31, 1927, stocks of gasoline increased 12,100,000 bbls. Over the same period ending January 31, 1929, stocks increased 14,200,000 bbls.

"As to crude, the tabulation shows the daily average production from California, Texas, and Oklahoma-Kansas, for the months of January, 1928, and 1929, and the week ending March 2, last. These figures speak for themselves. California production had increased 50,000 bbls., and Texas, 39,000 bbls., daily, over the January average; and, notwithstanding the proration and curtailment program in Oklahoma, production in Oklahoma and Kansas for the week ending March 2, last, was only 9,000 bbls. a day less than the average for January.

"Drilling wells in the United States for January, 1929, were 4,400, and combined initial production from new wells amounted to 719,027 bbls. For the first four months of 1928, drilling wells averaged 3,750, while monthly initial production for this period averaged 446,651 bbls.

"Notwithstanding the situation and trend clearly indicated by these figures, it is apparent that development, production, and refining activities are constantly increasing, when a drastic decrease is absolutely essential to prevent demoralization. There must immediately be a program of self-regulation which is far more effective if the industry is to be saved from a very bad year."

January, 1929, Change in Stocks (Bbls.)

	Monthly	Daily av.
Petroleum	6,446,000	208,000
Gasoline	7,582,000	245,000
Other products	*2,612,000	*85,000
Petroleum and products	11,416,000	368,000

*Decrease.

Increase in U. S. Gasoline Stocks (Bbls.)

Sept. 30, 1926, to Jan. 31, 1927	12,100,000
Sept. 30, 1928, to Jan. 31, 1929	14,200,000

Gasoline Price per Gallon

Summer of 1927	6 cents

Runs to Stills

	Bbls. daily
January, 1928	2,228,000
January, 1929	2,543,000
Increase	315,000

DAILY AVERAGE PETROLEUM PRODUCTION (Bbls.)

	January, 1928	January, 1929	Increase	Week ending Mar. 2, 1929	Increase
California	617,000	752,000	135,000	802,000	50,000
Texas	633,000	744,000	111,000	783,000	39,000
Oklahoma-Kansas	783,000	818,000	35,000	809,000	*9,000
			281,000		80,000

*Decrease.

High Spots in Field News

NEW MEXICO

Eddy County well drilled deeper increases from 150 bbls. to 550 bbls., apparently opening new pool.

NORTH TEXAS

Weaver Pool in Coleman County reported more encouraging.

Another good well in Bulcher area in Cooke County.

SOUTHWEST TEXAS

Well in Schoolfield-O'Byrne Pool, Duval County, came in flowing 1,200 bbls. through half-inch choke.

Joe Bruner field extended 2 miles, may expand to 14 and make 100,000 bbls. a day.

NORTH LOUISIANA-ARKANSAS

Ohio Oil Co. gets biggest producer in Champagnolle between east extension and old deep sand; made 1,192 bbls. in 10 hours.

Well in Ouachita County, midway between Smackover and Stephens production, is good for 150 bbls. by heads.

GULF COAST

Bennett Co.'s well, southeast flank of Barbers Hill, after flowing 200 bbls. for months increased to 3,000 bbls. of fluid, 2,400 bbls. net oil.

Humble well at DeWalt estimated 1,500 bbls. Yount Lee Co.'s well Spindletop came in flowing 1,000 bbls.

New shallow sand indicated in South Liberty.

CALIFORNIA

New deep O'Connell zone will probably be expansive in areal extent. Potentiality unknown until another completion. Possible intermediate sand.

Continental Oil Co.'s wildcat at Carpenteria flowed at rate of 10,000,000 feet of gas and might have shown oil if permitted to flow indefinitely and clean itself out. It developed so much pressure it had to be killed again. Considered one of most promising wildcats in state.

WEST TEXAS

A 50-bbl. well 2 miles south of production in Fisher County may open new pool or extend Stephens Pool.

Ward County wildcat in Shipley area is estimated 50 bbls.

Posthole well in Yates pumps 630 bbls. from 59 feet. Shallow producers attributed by some to pressure driving oil closer to surface.

Good wells completed on west side of Hendricks Pool. Of 560 producers in Winkler, 375 reported showing water.

OKLAHOMA

Sunday shut-down movement resulted in 75,000-bbl, reduction in Greater Seminole and St. Louis Pools.

Oklahoma City well produced 2,092 bbls. in 20 hours ending Tuesday, apparently not slipping from previous day's output. Flowing natural and making about one per cent water after the oil is treated.

Well east of south part of Earlsboro filled up 3,500 feet with oil and probably marks another small high or finger of production.

Peak of Mission Pool has been passed.

Complete Conservation Of Public Oil Lands Is Policy of Hoover

WASHINGTON, D. C., Mar. 12.—The most complete conservation of all government oil lands will be practiced by this administration according to a statement made by President Hoover today. This is interpreted as meaning that wherever discretionary power to grant leases on the public domain is vested in the Secretary of the Interior that power will not be exercised and that leases will be granted only in accordance with mandatory acts of congress.

President Hoover states this lease policy in the following language:

"There will be no leases or disposal of government oil lands, no matter what category they may lie in, of government holdings or government controls except those which may be mandatory by congress. In other words, there will be complete conservation of government oils in this administration."

It is understood that this policy was made known to the cabinet at its session today and that it has been fully discussed by the Secretaries of the Interior and of the Navy and the Attorney General. As the leasing of Osage Indian lands has been made mandatory by congress that policy cannot be changed except by an act of congress.

REGIONAL COMMITTEE MEETS

The interior Regional Committee of the Committee on World Production and Consumption met Wednesday in Tulsa in preparation for the general session to be held in Houston on Friday. The committee heard the report of the special committee consisting of Chairman W. C. Franklin, Ben N. Stephens and Roy B. Jones, which was appointed to gather information on production and consumption within the territory, which covers the greater part of the United States, and which information will be presented at Friday's general meeting.

PACIFIC WESTERN CO. BUYS FROM KETTLEMAN

NEW YORK, Mar. 11.—Pacific Western Oil Co. has acquired properties of the Kettleman Oil Corp. on the North Dome of Kettleman Hills under working agreement. The holdings comprise 1,760 acres, much of which is proved by discovery well of Milham Exploration Co. The holdings are third largest in the district. Pacific Western will start immediately with drilling on two locations. Kettleman corporation deal gives Pacific Western a total of 2,448 acres in the Kettleman Hills area.

REPORTED MARLAND IS FORMING NEW COMPANY

PONCA CITY, Okla., March 9—It is reported locally that E. W. Marland is organizing a producing company. Associated with him are Charles C. Brown and Alex McCoy, formerly high officials of the Marland Oil Co. It is reported from New York that the company will start with a capitalization of $3,000,000. Mr. Marland is now in New York.

Late News from the Field

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Mar. 12.—Magnolia Petroleum Co.'s No. 5-B Hahl, Schoolfield-O'Byrne Pool, Duval County, sand 2,300-37 feet, came in flowing 1,200 bbls. daily through half-inch choke. It extends the field one location west at the north end.

ARKANSAS

SHREVEPORT, La., Mar. 12.—Pinched in overnight, Ohio Oil Co.'s big well in Champagnolle, No. 1 Raulston, Section 12-17-14, in territory between the east extension and old deep sand production which previously had been condemned by two dry holes, made 1,192 bbls. in 10 hours Sunday afternoon and night. For the first two hours it flowed through seven-eighths inch choke and through one-eighth inch the rest of the time. The first production Saturday was clean oil but after being shut in for storage it made 4 per cent water Sunday.

C. H. McDonald's No. 1 Wilson, Section 25-15-18, Ouachita County, midway between Smackover and Stephens production, is good for 150 to 200 bbls. by heads, making 10 or 15 minute heads at intervals of one and a half to two hours from 6 feet of sand, total depth 2,806 feet. He has two 2-inch flow lines to tankage and will set 2½-inch tubing with

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Improves Outlook for the Weaver Pool

Second Well 314-Bbl. Initial Producer. Another Good Completion in Bulcher Pool, Wichita Falls Area, Stimulates Activity

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Mar. 11.—Developments that enhanced the outlook for the Weaver area in Coleman County and another big well in the old Bulcher area in Cooke County were the more noteworthy field developments in North Texas during the past week. All three areas in that part of Texas registered declines in production that resulted in a combined loss of 2,627 bbls. in daily average. By far the most of this production was in the light oil areas.

Herbert Oil Co. and associates completed their second well in the Weaver Pool in Coleman County for a 314-bbl. initial producer in pay at 1,823½-26 feet. In the same area the Shell Petroleum Corp.'s No. 1 Weaver was a failure at 1,850 feet. Despite this failure the area is still proving attractive.

Otherwise the Ranger district was quiet throughout the week. Daily average production showed a 1,650-bbl. decrease, the largest loss of any district in North Texas.

Another big well in the Bulcher Pool featured the week in the Wichita Falls area. It is the second big well in Cooke County within the past two weeks and is expected to be a stimulus to activity in the northern border county.

Last week The Texas Company completed its No. 5 Dennis for a 758-bbl. well at 1,217-39 feet. Shell Petroleum Corp.'s No. 3 Dennis, a north offset to The Texas Company's well, was drilled in the latter part of the week and started off swabbing and flowing at the rate of 50 bbls. per hour from pay at 1,210-20 feet. On a 20-hour swab test the well made 737 bbls.

Large Wilbarger Sale

The largest sale of properties in the district since the Continental Oil Co. purchased the Texhoma Oil & Refining Co. several years ago, was made last week when the Empire Gas & Fuel Co. paid $2,000,000 cash for the James E. McKanna properties in Wilbarger County. The deal involves 500 acres in Section 25, Block 4, H.&T.C. Survey.

It is located between the Grayback and Rock Crossing Pools in the southeast part of the county. Six wells on the property have a production of around 800 bbls. daily from three sands, the Dyson, 2,300-foot and 2,400-foot sands. The property is regarded as one of the best in that sector.

The water shortage throughout most of the Wichita Falls district was a serious menace to field development. Scarcity of rain in the past two months with the continued draft on the water sources brought about another acute situation. In Wilbarger County the drought was felt the most with approximately 80 rigs shut down because of the water shortage.

One of the most disappointing failures during the week was that of Bridwell Oil Co. and Petroleum Producers Co.'s No. 1 Sampley, in the Bryson area of Jack County, to make a well after getting a good show at 3,115 feet. The well is one location north of a producer and is being drilled deeper in search of a deeper pay.

Young County Led

Young County contributed most to the completion report with 21 wells completed. Five of these were dry holes and the remaining 16 were oil wells, all in the "grass roots" pay.

After showing a slight gain in daily average production for the first time in weeks the district was back on the slide in daily average. Last week the production was down 447 bbls. in comparison with the previous week's estimate.

The Panhandle area was the quietest of the three districts in North Texas with little out of the routine happening in the field during the week. As in the other districts Panhandle registered a decline in daily average production, going down 530 bbls. in comparison with the previous week.

NORTH TEXAS
Estimated Daily Average Production for the Week Ending March 9

Panhandle District—	
Carson County	5,950
Gray County	21,440
Hutchinson County	26,255
Moore County	1,470
Potter County	20
Wheeler County	505
Total this week	55,640
Total last week	56,170
Decrease	530
Wichita Falls District—	
Archer County	17,196
Baylor County	90
Clay County	435
Cooke County	3,400
Jack County	1,664
Montague County	6,975
Throckmorton County	693
Wilbarger County	26,469
Young County	7,258
Wichita County	27,511
Total this week	91,691
Total last week	92,138
Decrease	447
Ranger District—	
Brown County	8,802
Callahan County	3,683
Coleman County	3,695
Comanche County	1,118
Palo Pinto County	390
Ranger	5,727
Shackelford County	12,990
Stephens County	6,792
Total this week	43,197
Total last week	44,847
Decrease	1,650
Grand total this week	190,528
Grand total last week	193,155
Decrease	2,627

RANGER COMPLETIONS
Week Ending March 9

Brown County

Bradstreet and others' No. 1 Reaves was dry and abandoned at 1,401 feet. Culberson Brothers' No. 1 Smoot was dry and abandoned at 1,207 feet. Humble Oil & Refining Co.'s No. 14 Armstrong made 130 bbls. at 1,202-20 feet. Independent Oil & Gas Co.'s No. 1 Williams was dry and abandoned at 2,148 feet. Lone & Michael's No. 1 Graham was dry and abandoned at 1,730 feet. Phillips Petroleum Corp.'s No. 2 DeBusk was dry and abandoned at 1,505 feet. Rhodes & Righer's No. 1 Dunn was dry and abandoned at 2,200 feet. Ven Mex Oil Co. of Texas' No. 23 Hickman was drilled to a total depth of 1,268 feet, plugged back to 1,242 feet, shot with 20 quarts at 1,233-42 and made 12 bbls. Young Brothers and others' No. 9 Armstrong was dry and abandoned at 1,220 feet. Their No. 22 Hickman was dry and abandoned at 1,720 feet. Green and others' No. 2 Riordan was shot with 10 quarts at 1,164-69 feet and made 10 bbls. W. L. Spence's No. 1 Conway was temporarily abandoned at 822 feet.

Comanche County

Carter and others' No. 1 Reed made 175,000 feet of gas at 1,480-1,523 feet.

Coleman County

Herbert Oil Co. and others' No. 2 Weaver made 314 bbls. at 1,813½-26 feet. Ilsing Production Co.'s No. 2 Eddington made 1,850,000 feet of gas at 1,124-29 feet. Simms Petroleum Co.'s (for Pitts and others) made 865,000 feet of gas at 359-70 feet. Shell Petroleum Corp.'s No. 1 Newson was dry and abandoned at 2,001 feet. Prairie Oil & Gas Co.'s No. 1 Reaves was shot with 5 quarts at 1,354-66½ feet and made 350,000 feet of gas.

Eastland County

Barkley & Crotty's No. 1 Browning was dry and abandoned at 1,304 feet. L. E. Edwards' No. 1 Gibson was dry and abandoned at 1,692 feet.

Shackelford County

Cranfill & Reynolds' No. 1 Flippin-F was dry and abandoned at 985 feet. Earl & Dull's No. 5 Matthews made 250 bbls. at 1,128-51 feet. Hughes and others' No. 1 Newell was dry and abandoned at 1,536 feet. Roeser & Pendleton's No. 9-A-83 Cook made 60 bbls. at 1,390-96 feet. Their No. 1 Matthews was dry and abandoned at 1,260 feet. Simms Petroleum Co.'s No. 5 Lones made 50 bbls. at 784-87 feet. Tannehill's No. 3-28 Matthews was dry and abandoned at 1,690 feet. Tennant and others' No. 2 Matthews was dry and abandoned at 1,194 feet.

Stephens County

Lone Star Gas Co.'s No. 1 Elliot location was abandoned. States Oil Corp.'s No. 1 Sikes made 1,250,000 feet of gas after having been shot with 40 quarts at 3,706-26 feet.

Callahan County

Harwell and others' No. 1 Osborn was dry and abandoned at 804 feet.

PANHANDLE COMPLETIONS
Week Ending March 9

Carson County

Holmes and others' No. 1 Quinn, located 330 feet from south and 330 feet from east line, SW cor. Section 7, Block 9, I.&G.N.R.R. Survey, made 90 bbls. at 3,027-96 feet.

Gray County

Prairie Oil & Gas Co.'s No. 2 Reynolds, located 330 feet each way from NW cor. SE Section 61, Block 3, I.&G.N.R.R. Survey, made 40 bbls. at 3,094-3,101 feet and was drilled to a total depth of 3,143 feet.

Hutchinson County

Phillips Petroleum Corp.'s No. 6 Johnson Brothers (Barnum) was drilled to a total depth of 2,881 feet, plugged back to 2,878 feet, topped the pay at 2,861 feet and had an initial production.

Motley County

Exploration Co. of Texas' No. 2 Matador was dry and abandoned at 4,750 feet.

WICHITA COMPLETIONS
Week Ended March 9

Archer County

Rathke Oil Co.'s No. 7 Wilson-A was dry and abandoned at 1,407 feet. E. J. Stump Co.'s No. 1 American was dry and abandoned at 1,453 feet. Wolf & Son's No. 1 Nitschke was dry and abandoned at 778 feet. Boller and others' No. 1 Falls was dry and abandoned at 1,201 feet. Gilliland & Rosser's No. 1 Dupriest was dry and abandoned at 1,481 feet. H. L. Lear's No. 1 McCarty was dry and abandoned at 1,504 feet. Pandem Oil Corp.'s No. 1 Richardson was dry and abandoned at 1,475 feet. United Producers Co.'s No. 1 Kovar was dry and abandoned at 1,506 feet.

Clay County

Lone Star Gas Co.'s No. 27 Holloway was dry and abandoned at 1,905 feet.

Cooke County

Kewanee Oil & Gas Co.'s No. 7 Timmis-A made 160 bbls. at 1,299-1,527 feet. Its No. 2 Timmis-B made 60 bbls. at 1,083-1,231 feet. The Texas Company's No. 5 Dennis made 758 bbls. at 1,217-39 feet.

Montague County

Pure Oil Co.'s No. 9 Maddox made 25 bbls. at 822-50 feet. Beckner and others' No. 1 Phillips was dry and abandoned at 2,005 feet.

Wilbarger County

Apple Brandeberry's No. 1 Waggoner made 75 bbls. at 2,294-2,313 feet. Easter Oil Co.'s No. 2 Waggoner-B made 240 bbls. at 1,907-32 feet. Lewis Production Co.'s No. 5 Waggoner made 25 bbls. after having been drilled to a total depth of 2,457 feet and plugged back to 2,415 feet. Shaw Oil Co.'s No. 4 Waggoner-E had an oil show at 2,396-2,425 feet, was plugged back to 2,413 feet and made 65 bbls.

Wichita County

Bridwell & Mayfield's No. 4 Womack

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WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week ended March 9

Company, well, farm, name, section and block—	Remarks—
CARSON COUNTY	
Denson et als' No. 1 W. E. Cobb, 930 ft. from N line, 280 ft. from E line, W½ NW Sec. 184, Blk. 2, I.&G.N. Sur.	S.D. 2,200 ft.
Delmar Oil Co.'s No. 3 Noel, 330 ft. from E line and 990 ft. from N line W½ SE, Sec. 198, Blk. 3	Drlg. 2,910 ft.
Gulf Prod. Co.'s No. 1-E Cooper, 330 ft. S and W of NE cor. SW, Sec. 5, Blk. 9, I.&G.N. Sur.	Drlg. 1,432 ft.
Gulf Prod. Co.'s No. 6 Noel, 330 ft. S and 1,320 ft. E of NW cor. of SW Sec. 198, Blk. 3, I.&G.N.	Drlg. 446 ft.
Mariand Prod. Co.'s No. 1 Burnett-L, 440 ft. S and 1,320 ft. NW of NE cor. Sec. 79, Blk. 4, I.&G.N. Sur.	Fish. 755 ft.
McElroy Oil Co.'s No. 1 Lewis, 330 ft. S and E of NW cor. of SW of NE, Sec. 115, Blk. 4, I.&G.N.R.R. Sur.	Rig.
Morris et al's No. 1 Barnard, NW cor. SW SE, Sec. 44	Fish. 2,200 ft.
Reynolds et al's No. 1 E. Cooper, 330 ft. from S line and 330 ft. from E line NW, Sec. 5, Blk. 9, I.&G. N.R.R. Sur.	Pay 3,127-78 ft; swbd. 155 bbls.; to shoot.
Spartan Oil Co.'s No. 1 S. Bednorz, NW cor. E½ NW, Sec. 202, Blk. 3, I.&G.N. Sur.	Set 6-in. 2,658 ft.
Skelly Oil Co.'s No. 1 Hedrick, 660 ft. from N line and 660 ft. from W. line Sec. 239, Blk. B-2, H.&G.N. R.R. Sur.	Fish. 135 ft.
Skelly Oil Co.'s No. 11 Schaffer, 330 ft. from S line, 990 ft. from the W line, Sec. 88, Blk. 4, I.&G.N. R.R. Sur.	Swbd. 165 bbls. 3,150-75 ft; to deepen.
Skelly Oil Co.'s No. 12 Schaffer, 330 ft. from S line and 1,650 ft. from the W line of Sec. 88, Blk. 4, I.&G.N.R.R. Sur.	Drlg 2,600 ft.
Travis et al's No. 1 D. A. Harrell, C NE NE, Sec. 162, Blk. 7, I.&G.N. Sur.	S.D. 3,261 ft.
Ware et al's No. 1 Ware, 990 ft. S and 400 ft. E NW cor. Sec. 18, Blk. 3, A.B.&M. Sur.	Drlg. 4,250 ft.
CASTRO COUNTY	
Colorado O. & R. Co.'s No. 1 M. Siemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur.	Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur.	S.D. 510 ft. for csg.
CHILDRESS COUNTY	
C. L. Soane et al's No. 1 B. P. Smith, Sur. 49, F. P. Knott lands	S.D. 4,340 ft.
The Texas Co.'s No. 1 Smith, 160 ft. each way from NW cor. Sec. 174, Blk. H., W.&N.W. Sur.	Hole full sulphur wtr. 3,985 ft; drlg. 4,416 ft.

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Wildcat Extension in Fisher County

Deeper Tests for Pecos. Remarkable Shallow Producers in Yates. Good Wells in West Hendricks

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Mar. 11.—Wildcats in Fisher and Ward Counties along with developments in the Yates and Hendricks fields were prominent in the field news of West Texas during the week as the upward trend of Permian Basin production was at least temporarily halted.

Approximately 2 miles south of production Cranfill & Reynolds and Sun Oil Co.'s No. 1 Brown, NW cor. Section 4, Block R, W. E. Richardson Survey, is estimated to be a 50-bbl. well in the Stephens pay at 3,193-97 feet. The well has either opened a new Fisher County pool or extended the Stephens pool, the first in the county.

The new producer is 25 feet lower structurally than the producers to the north. On a swab test Sunday the well made 36 bbls. in 10 hours and will probably be tested on the pump before being deepened. This well had water in the Noodle Creek horizon at 2,965 feet. The oil is not showing any water.

J.H.L. Oil Co.'s No. 1 Hayzlett, Section 17, Block 5, Ward County, has extended the Shipley area a half-mile to the south. The well topped pay at 2,455 feet and penetrated it to 2,469 feet. More than 700 feet of oil rose in the hole and it is estimated a 50-bbl. well as it stands.

In this pool Atlantic Oil Producing Co. and Delmar Oil Co.'s No. 1 Hayzlett, north offset to the discovery well, made 12 bbls. on a swab test in pay at 2,473-85 feet but on the pump the well is making around 80 bbls. daily. Shipley and associates are still fishing for junk in the discovery well and production is down to around 40 bbls. daily. This well was making 100 bbls. daily but paraffined up and the fishing job resulted when an attempt was made to clean it out. It is feared the hole may be lost.

Elevations and pay records of the three producers in the new pool are as follows: Shipley and others' No. 1, elevation 2,503 feet, pay record 2,480-81 feet; Atlantic and Delmar Oil Co. No. 1, elevation 2,504 feet, pay record 2,473-85 feet, and J.H.L. Oil Co. No. 1, elevation 2,522 feet, pay record 2,455-69 feet.

Shallow Wells in Yates

The Yates Pool has been a sensational area since its discovery but now it is gaining fame as a real shallow oil pool. Marland Production Co. discovered recently that one of its water wells on the A lease in Section 60, Block 1, is going to oil. On a pump test it pumped 200 bbls. of dead oil from a total depth of 135 feet. No. 2-S Yates A, in the same section, made a remarkable post-hole well at 25 to 55 feet and was drilled to a total depth of 59 feet.

When the well was put on the pump it made 630 bbls. the first 24 hours and was down three hours. The next day it made 525 bbls. and on the third day 625 bbls. without water showing. No. 3-S looks like a bust at 64 feet without anything showing but No. 4-S picked up a showing at 19 feet and at a total depth of 34 feet it had a hole full of oil that could not be bailed down with a 9-inch bailer. All of the "shallow" producers are designed with the letter "S."

The explanation of the freak producers according to field men is that the enormous pressure necessary to flow the gushers in Yates is driving the oil to the more shallow sands close to the surface. In the early development of Yates several wells were completed with none-too-good casing resulting in a few badly cased holes. This condition has permitted the oil to find its way to the water sands high up in the hole. This same condition is responsible for the seepage along the banks of the Pecos river, according to many. The latter oil is trapped in the river and recovered and last month several thousand barrels were saved.

While Yates is a shallow producing pool it had an unusual shallow gusher in Mid-Kansas Oil & Gas Co. and Transcontinental Oil Co.'s 300-bbl. well at 602 feet. As production at this level declined the well was deepened and at less than 1,000 feet it made more than 4,400 bbls. per hour.

Deep Tests in Pecos

Two tests in Pecos County are likely to be carried down in search of Pennsylvanian production. The deep pay is expected to be found at a depth much less than the 8,500-foot pay in Reagan County. Grant and associates' test in Section 19, Block 140, may be carried down. At present the well is drilling at 4,425 feet in brown lime and shale and is believed to be about through the big lime section. Contract depth of the hole is 4,500 feet but it is drilling in a 10-inch hole in good condition. Shell Petroleum Corp. is rigging up to deepen its No. 1 University, Section 23, Block 26, University Lands. It has been shut down at 4,002 feet.

Good Wells in West Hendricks

Considerable interest in Hendricks has shifted to the west flank where several good wells are being completed. Gulf Production Co. recently completed a good well in that area and Pure Oil Co. is getting a good well in one of the lowest wells structurally in the field. Pure Oil Co.'s No. 1 Hendricks D, Section 44, Block 26, has a surface elevation of 2,833 feet and topped lime at 2,841 feet or 8 feet below sea level. It had a show of gas at 2,860 feet and the first show of oil at 2,863 feet. At 2,897 feet the well had 1,100 feet of oil and at a total depth of 2,948 feet it is flowing by heads and estimated good for 600 bbls. Three tests in the north end of the field show the structure is dipping very little in that direction and it, too, may be the cause of more development in Hendricks.

The most recent water report on the field reveals 375 wells of the 560 producers in Winkler County to be making water in varying percentages. There are 26 wells being produced wide open, 91 pumping, 26 pumping and flowing through tubing and 234 wells pinched below their capacity.

Figures compiled by Reed Alsobrook, umpire in Hendricks, show that Winkler County produced 4,782,182 bbls. during February at a daily average rate of 170,792 bbls. Pipe line reports show that pipe lines, tank car shipments and local refineries took 4,054,191 bbls. during the same period at a daily average rate of 144,792 bbls.

Pipe Line Plans

The several pipe line construction jobs in West Texas are progressing at a normal rate and according to field reports the Marland company is receiving bids on a proposed 8-inch line that would extend from Lea County, New Mexico, through the Hendricks Pool down into the Roberts area in southern Howard County. The same source reports the Pasotex Pipe Line Co. (California Co.) is planning the extension of its Hendricks-El Paso line north into Lea County. Humble Pipe Line Co. is reported to have delayed plans for an extension into Lea County until the area has more production.

Humble company is adding four booster stations to its double 8-inch line from Kemper Station in Reagan County to Comyn in Comanche County that will increase the capacity to around 55,000 bbls. daily. The Humble, according to field reports, has contracted to take the entire output of the Phillips Petroleum Co.'s natural gasoline plant in the Church and Fields Pool. Last month the Humble company took around 1,200 gallons daily from the plant.

Deepest Well's New Peak

Texon Oil & Land Co.'s deep well in the Big Lake Pool made another production peak when it gauged 2,134 bbls. of 56 gravity oil for the 24 hours ending March 11. The gas increased to 21,000,000 feet. Since the discovery of the deep pay the well has had a recovery of close to 150,000 bbls. of high gravity crude.

Big Lake has always been more or less prominent in the development of West Texas and with the drilling of the deep wells in that pool and plans for repressuring part of the field it will be prominent for some time to come.

During the past week engineers began studying conditions in the field and plans to start repressuring with the gas from the deep well. Part of this gas is being used by two gasoline plants operating in Big Lake. The excess will be used to repressure the 3,000-foot zone, which has yielded the bulk of production thus far.

E. O. Bennett, Marland Production Co. engineer, assisted by other engineers attached to the same company, will supervise the work from a technical end. They will be assisted by Garth Young of the Signal Gasoline Co.

With a sharp increase in production during the last week in February and crude movements remaining normal, runs to storage in West Texas showed an increase. Below is table of crude movements for the week ending February 28 with a comparative summary.

PIPE LINE RUNS
Week February 21 to 28, (Inclusive)
Runs Through Trunk Lines

	Last period
Atlantic P. L. Co. to Pt. Arthur, Tex.	34,134
Gulf P. L. Co., to coast via Ranger, Tex.	24,602
Humble P. L. Co., via Comyn, Tex.	55,199
Humble P. L. Co., via Ingleside, Tex.	50,393
Illinois P. L. Co., to Del Rio, Tex.	44,000
Magnolia Pet. Co., to coast via De-Leon, Tex.	28,358
Pasotex P. L. Co., to El Paso, Tex.	8,751
Shell P. L. Co., to Healdton, Okla.	37,339
Total	265,259

Tank Car Shipments

Orient, McCamey, Tex.	155
The Texas Co., Ranger, Tex.	914
American Pet. Co., Pyote, Tex.	2,938
Cosden & Co., Big Spring, Tex.	10,138
Shell Pet. Co., Monahans, Tex.	2,077
Skelly Pet. Co., Pecos, Tex.	3,385
Southern C. O. P. Co., Wickett, Tex.	16,815
The Texas Co., Monahans, Tex.	966
Burford Ref. Co., Pecos, Tex.	1,876
Independent O. & G. Co., Pyote, Tex.	6
Total	39,290

Runs to West Texas Refineries

Amarillo Prod. Co., Pyote, Tex.	2,522
Blue Bonnett Ref. Co., Wickett, Tex.	4,420
Burford Ref. Co., Pecos, Tex.	4,343
Col-Tex Ref. Co., Colorado, Tex.	6,565
Great Western Ref. Co., Big Spring, Tex.	4,218
Humble O. & R. Co., McCamey, Tex.	10,570
Midland Ref. Co., Midland, Tex.	2,161
Tonkawa Ref. Co., Pyote, Tex.	2,967
Valley Ref. Co., Pyote, Tex.	5,691
Big Spring Ref. Co., Big Spring, Tex.	1,969
Total	44,246

Summary

	Previous week	Last period
Pipe line runs through trunk lines	264,329	265,259
Tank car shipments	41,511	39,290
Runs to West Texas ref.	39,051	44,246
Total daily disposition	344,891	348,795
Daily average production	364,183	376,600
Dail average to storage	19,292	27,895

Estimated Daily Average Production

WEST TEXAS
Week ending March 9

County—	Wells	Prod.
Crane County	278	36,987
Crockett County	45	2,133
Ector County	2	0
Fisher County	7	925
Glasscock County	17	961
Howard County	281	47,311

(Continued on Page 149)

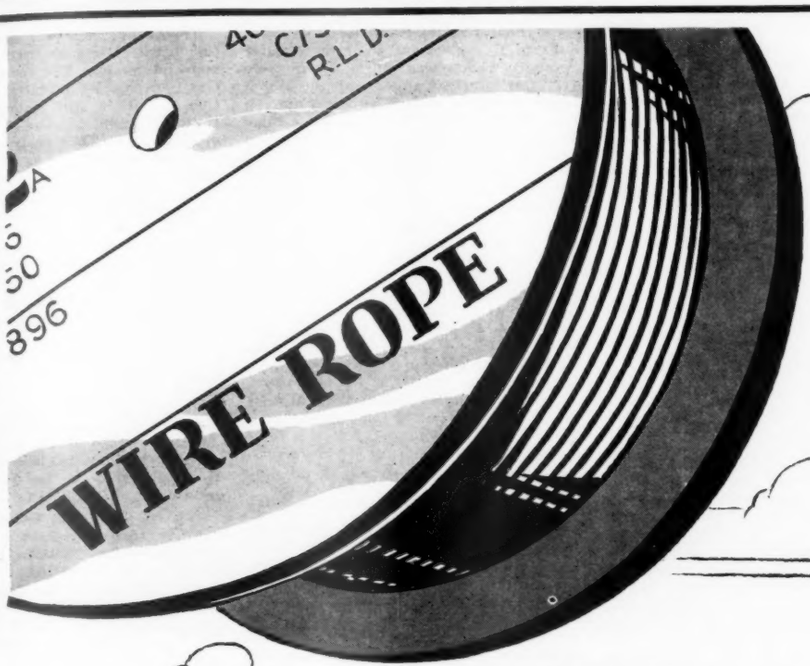
WILDCAT OPERATIONS IN WEST TEXAS

Week Ended March 9
ANDREWS COUNTY

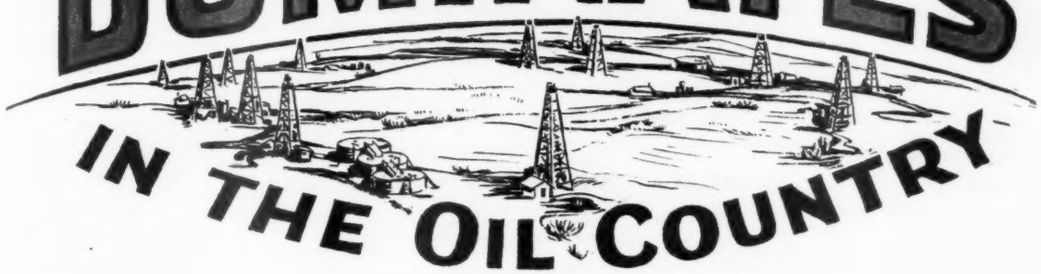
Company, farm and location—	Remarks—
Deep Rock Oil Co.'s No. 1 Hostetler, 2,310 ft. N and W of SE cor. Sec. 20, Blk. A-46	Hole full water 1,390 ft.; underreaming 10-in. casing; top salt 1,890 ft.; drlg. 2,835 ft., salt and anhydrite; total depth 3,250 ft.; set 8¼-in. casing 2,790 ft.
Mid-Continent Oil & Gas Co.'s No. 1 Fisher, 1,320 ft. N and 200 ft. E of SW cor. Sec. 5, Blk. A-36	Location.
BORDEN COUNTY	
Gibson & Johnson's No. 1 Higginbotham, middle of S line of Sec. 8, Blk. 31, Twp. 3n, T.&P.R.R. Sur.	Bldg. rig.
C. E. Hyde et al's No. 1 D. H. Beal, C NE Sec. 14, Blk. 31, Twp. 3n, T.&P.R.R. Sur.	Drlg. 180 ft.
Teas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur.	Location.
BREWSTER COUNTY	
E. W. Bateman et al's No. 1 Nevill, 2,000 ft. from S line and 1,000 ft. from W line of Sec. 64, Blk. 13, G.H.& S.A.R.R. Sur.	Show oil and gas; hole full of water; underreaming 1,926 ft.
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 4, Blk. G-15, G.C.&S.F.	Drlg. 800 ft.
Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.	Set 8-in. 1,530 ft.; shut down 2,000 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,310 ft.; show oil 1,300 ft.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 183, Blk. 9, G.H.&S.A. Sur.	Shut down 1,150 ft.
Johnson & Weekly's No. 1 Jackson & Harmon, C Sec. 104, Blk. 10, G.H.&S.A. Sur.	Rigging up.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 53, Blk. 362, 7 mi. S of Alpine	Shut down 1,740 ft.
Williams and others' No. 1 Poncey, 459 ft. S and 1,062 ft. E Sec. 26, Blk. 214, T.&St.L.R.R. Co.	Shut down 515 ft.
COKE COUNTY	
Cates & Dennis' No. 1 Mimms, 2,500 ft. S and 330 ft. E of NW cor. Sec. 47, Blk. 4, T.&P. Sur.	Shut down 1,585 ft.
Cates & Dennis' No. 2 Mimms, 2,340 ft. N and W SE cor. Sec. 8, Blk. W, T.&P. Sur.	Spudded and shut down.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Shut down 2,860 ft.
Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor. Sec. 272, Blk. 1-A, H.&T.C.	Underreaming 3,212 ft.

(Continued on Page 91)

HAZARD



DOMINATES



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Oklahoma Decline Result of Proration

Decrease of 32,000 Bbls. Daily Almost Wholly Attributed to It. Peak of Mission Pool Has Been Passed

By J. L. Dwyer

The decreased production of the State of Oklahoma which was accomplished directly and almost entirely through the work of proration was the most important news which last week offered in the Mid-Continent region. The daily average production of the State showed a decrease of over 32,000 bbls. daily for the week ending Saturday, March 9, and with the exception of a few hundred barrels, this amount was all caused by proration in the Greater Seminole territory.

The efficacy of proration, and the fact that with a very few exceptions, the operators are giving this policy their wholehearted support have done much to stem the discussion of any further reductions in the price of crude oil. It seems probable at this time that the price structure will be unchanged, whereas at the time proration went into effect, there were many rumors regarding the possibility of further cuts in the posted price. The prompt action of the producers in complying with the rules of proration must be credited with saving the crude market, for had it continued unchecked there was little possibility of holding it steady.

While the work of the producers has been highly beneficial, the industry is far from being out of the woods, and the optimistic note which might generate from the news of the decreased production should be tempered with the consideration that at this time the crude market, while probably saved from further reductions, is far from healthy. There is approximately 57,000 bbls. of crude oil going into storage daily in the Oklahoma-Kansas region. While this amount is fairly well distributed with almost every major purchaser of crude oil having a share in putting oil into the tanks, past experiences have clearly indicated that the only healthy crude situation in the territory under consideration is found when oil is coming out of the tanks instead of going into them. The most logical diagnosis of the crude case would be the statement that the patient's condition is better but he is far from well. The most exhilarating tonic which the crude market in this region could have would be an exceptionally heavy dose of spring sunshine to accelerate the gasoline market.

Oklahoma City Well

In the matter of field development, the most sensational news is that the discovery well at Oklahoma City is still slipping in output, and making water. The steady decline of this well has caused more or less of a damper to be placed on the enthusiasm which has been displayed regarding the general outlook for this pool, and many seem to have the thought that the decline of the well will eliminate the possibilities of the entire region. This theory hardly seems logical. Regardless of the outcome of the Oklahoma City well, the fact that good production has been established from a deep formation in this territory is sufficient to stimulate interest in this area for some time to come. The great lease play which has been made in this general region has resulted in an expenditure amounting to several million dollars. This expenditure can be justified only by a drilling campaign. This campaign may not be started this year, but the good yield of the Oklahoma City well is bound to cause much drilling in the central part of the State.

For the past several days the Indian Territory Illuminating Oil Co.'s No. 1 fee (discovery) C SE SE Section 24-11-3w, has been dropping on an average of 150 bbls. daily. It has also been making some water. These facts have slightly chilled the feeling of the operators, but it should also be remembered that the well has made almost a half million barrels of oil, and in addition to this it is not such a bad well right now. The good yield of the well to date might be compared to the production of some other wells which discovered pools, and it would not suffer by the comparison. The Oklahoma City well was discovered in December, 1928. From discovery until Monday morning, March 11, the well has produced 474,662 bbls. of crude oil.

Production in March

The production of the well by days during the month of March follows:

March 1	4,347
March 2	4,099
March 3	4,035
March 4	*3,561
March 5	3,449
March 6	3,276
March 7	2,910
March 8	2,829
March 9	2,910
March 10	2,588
March 11	2,448

*Cut started.

While no tests have been made at the well-head, the oil is being treated and the condition after treatment shows it is making 1 per cent water. It seems probable therefore that the well is cutting about 3 per cent at the casinghead. Its future will be watched with interest.

Other Good Showings

There have been several wells which have cored good showings of oil and gas in the Oklahoma City region within the past week. The T. B. Slick No. 1 Huddleston, SW cor. SW SE Section 19-11-2w, cored a sand which had a good show of oil from 4,128-45 feet, and another from 4,310-25 feet. Hall & Briscoe's No. 1 Holmes, in Section 10-11-3w, cored sand which held an oil showing from 4,147-61 feet. The Indian Territory Illuminating Oil Co.'s No. 1 Trosper in Section 13-11-3w, had a show of gas in a core from 4,765-4,806 feet; while the same company's No. 1 Foster in Section 24-11.3w had a show of oil in a sand which was cored from 4,917-23 feet. The Mid-Kansas Oil & Gas Co.'s (formerly Ramsey Petroleum) No. 1 Forston, C SW NE Section 24-11-3w, had a show of gas at 4,862-74 feet which was also cored.

Considering the numerous showings which have been found in the shallower sands in this region, it seems possible that the deep sand will make the front pages, but the shallow sands will make the money.

Greater Seminole

From a development point the Greater Seminole region was quiet. There were very few locations announced, the Maud-Mission region being the most interesting. There was little news from these pools which pertained to the Wilcox sand, although there were several completions to the Misener sand in the Maud region. An exceptionally interesting well located half way between these pools is the Gypsy Oil Co.'s No. 1 Johnson, NE cor. NW SW Section 15-8-5. This well had the Woodford formation at 3,869 feet, and this indicates a high position, but past experience illustrates that this has slight bearing upon the Wilcox formation. It may, however, mean that the well is high enough to offer good production from either the Misener or some other formation above the Wilcox.

Another interesting well in the Mission region is the Carter Oil Co.'s No. 2 Coker, SE cor. SW Section 2-8-5. This is being closely watched because it is the farthest well on the northwest edge of the Mission activity.

Mission Pool

By this time a rather definite idea of the possibilities of the Mission Pool may be obtained. There have been 73 wells drilled into the Wilcox sand and completed. The results have not reached the anticipations, and while the production has been fair, the region is rather disappointing. It was freely predicted by students of this spot that when the Mission wells were completed they would throw at least 60,000 and possibly 75,000 bbls. of crude on the market daily. This figure has failed to materialize. The best day the Mission experienced when thrown wide open was 48,640 bbls. This was considerably less than expected. The only drilling wells in this region at present are the wells which were started March 1. They will not be completed for at least 60 days and by that time, judging by the records of the individual wells in Mission, the area will be down to around 20,000 or 25,000 bbls. daily. Providing that no extensions to the pool are made, the peak of the Mission area is touched and gone. The most interesting part of the Mission area is the west side where there seems to be a slight possibility of extending the field in the vicinity of Section 12-8-5.

South of Little River

The shallow sands in the south end of the Little River district have been more interesting. The Independent Oil & Gas Co.'s No. 1 Carpenter, NW cor. Section 27-7-6, is still making 1,200 bbls. from the Cromwell sand at a total depth of 3,118 feet. The steady output of this well has caused three new locations to be made, and at present there are seven wells drilling to the Cromwell and Gilcrease sands. The Independent Oil & Gas Co.'s No. 1 Reed, SE cor. NE NW Section 26-7-6, is still making 65,000,000 feet of gas from the Gilcrease sand, 3,125-43 feet. A note on gas wells in this region is that when the gas pressure declines they have sometimes turned into oil wells.

North of the Allen Field of Pontotoc-Hughes-Seminole Counties, the Sinclair Oil & Gas Co. has another discovery which picks up the interest in the area although it is not startling in output. The well is No. 1 Davis, Section 7-6-[illegible] and it is making 390 bbls. from a formation believed to be the Viola lime at a total depth of 3,726 feet.

Beckham County

Co-Operative Syndicate's No. 1 Joyce, NE cor. Section 22-9-23w, has been completed for 18,000,000 feet of gas at 2,817 feet. Sayre Oil & Refining Co.'s No. 1 Davis, SW cor. NW, Section 24-9-23w, was deepened from 2,626 feet to 2,80[illegible] feet and completed for 28,000,000 feet of gas.

Caddo County

Wirt Franklin Oil Corp.'s No. 1 Vann, SW cor. NW NW, Sectio 4-5-9w, is preparing to deepen from 4,087 feet.

Carter County

Magnolia Petroleum Co.'s No. 1 Johnson, SE cor. NE, Section 32-1s-3w, is drilling at 2,715 feet. Humble Oil & Refining Co.'s No. 1 Hitchcock, SE cor. SW NE NE, Section 12-4s-3 has been abandoned at 1,500 feet.

Comanche County

Turner & Long's No. 1 Curtis, NE cor. SE, Section 25-2-10w, has been abandoned at 430 feet.

Creek County

Dixie Oil Co. has a machine at the location for No. 6 Dickinson, SE cor. Section 7-19-9. William Sherry & Carter Oil Co. moved a machine to the location for No. 2 Harmon, SW cor. SE NE, Section 28-19-9. No. 2 Mesquite, SW cor. SE NE, Section 36-19-9 is rigging up. Magnolia Petroleum Co. is repairing the rig at No. 11 Deere, SW cor., Section 7-17-7, Drumright Pool to deepen from 2,461 feet. D. W. Franchot and others' No. 2 Garrett, NW cor. NE SW, Section 16-16-10, is a rig on the ground. Virginia Drilling Co. made location for No. 2 West, SE cor. SW NW, Section 16-16-10. Lockhart Gas Co. staked location for No. 1 Hogan, NE cor. NW NW, Section 24-15-12.

William Sherry & Carter Oil Co.'s No. 1 Harmon, SW cor. SE NE, Section 28-19-9, has been completed for 2,000,000 feet of gas in sand 1,359-66 feet. Winemiller Corp.'s No. 1 Darrisaw, SE cor. SW, Section 34-19-9, is dry and abandoned at 3,017 feet. Pure Oil Co.'s No. 3 S. Crow, CEL NE NE, Section 5-18-7, is pumping 2½ bbls. from sand 2,573-2,644 feet. Magnolia Petroleum Co.'s No. 7 Vance, CWL SW NE, Section 7-18-7, made 75 bbls. in sand 2,478-90 feet. No. 34 Coker, SW cor. NW NW, Section 16-18-7, was completed for 20 bbls. in sand 2,510-41 feet.

Silurian Oil Co.'s No. 27 Starr, SE cor. NW NE NE, Section 17-18-7, made

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

LATTIMER COUNTY

Company, farm and location—	Remarks:
Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18	1,000,000 ft. gas 2,518-20 ft.; underreaming 2,780 ft.

GRANT COUNTY

Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w	Shut down 5,640 ft.
Lario-Lathrop's No. 1 Cornell, NW cor. NW Sec. 24-28-3w	Drlg. 3,420 ft.

HARPER COUNTY

Hoffer Oil Co.'s No. 1 Cooper, NW cor. SE SE Sec. 12-25-22w	Shut down 4,130 ft.

KAY COUNTY

Wentz Oil Corp.'s No. 1-A Ward, C NW SE SW Sec. 32-27-1e	Drlg. 2,670 ft.

WOODWARD COUNTY

Sharon Oil Co.'s No. 1 Elmore, SW cor. SW Sec. 25-21-21w	Rig blown down 3,025 ft.
Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w	Shut down 2,342 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w	Shut down 1,910 ft.
Wilson et al's No. 1 Unknown, NE cor. SW Sec. 4-23-16w	Spudded.

GARFIELD COUNTY

E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w	Shut down 4,755 ft.

GARVIN COUNTY

Mid-Continent Petroleum Corp.'s No. 1 James, SE cor. SE Sec. 22-5-3	Drlg. 700 ft.

KINGFISHER COUNTY

McKinney & Crawford's No. 1 Sturgeon, NE cor. SW Sec. 27-16-6w	Shut down 4,895 ft.

LOGAN COUNTY

Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w	U.R. 3,990 ft.

(Continued on Page 99)

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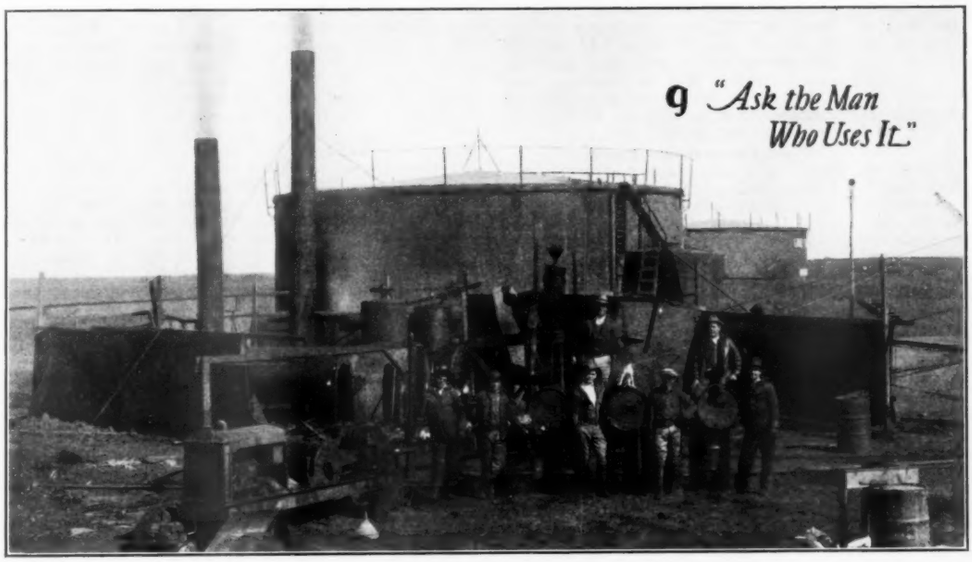

[*Using Vez in treating accumulated tank bottoms . . . . 55,000 barrel quantities to pipe line oil.*]

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1,250,000 feet of gas in sand 654-57 feet. Curtis Oil Co.'s No. 1 McIntosh, NW cor. SW NE, Section 13-17-11, has been abandoned at 2,513 feet. Wilcox Oil & Gas Co. and others' No. 8 Anthis, CWL NW SW, Section 1-16-11, is dry and abandoned at 2,367 feet. C. O. Buckles' No. 1-A Frank, NW cor. SW SW, Section 18-16-13, is a dry hole at 2,274 feet. C. G. Tibbens' No. 39 Connisenny, NE cor. SE NW, Section 30-15-9, is a 10-bbl. well in sand 1,243-74 feet.

Grady County

Oklahoma Gas Utilities Corp.'s No. 2 Goerty, SE cor. NE SE SE, Section 26-4-8w, is drilling at 350 feet.

Hughes County

T. B. Slick's No. 6 Bruner, NW cor. SE NW, Section 2-9-9, is rigging up to deepen from 3,090 feet to the Hunton lime. Fuhrman & Newman's rig is up for No. 2 R. Buck, C SW SW, Section 21-9-10. Pure Oil Co. has the rig on the ground for No. 1 Harrod, NW cor. NE NE, Section 7-8-9. T. W. Atkins' No. 1 Reed, NE cor. NW, Section 2-8-8, is dry and abandoned at 4,370 feet in Wilcox sand.

Kay County

Anolu Oil Co.'s No. 2 Barr, C NE NW, Section 16-27-1w, is rigging up to deepen from 3,440 feet. Marland Production Co.'s No. 4 North, SW cor. NW SW, Section 6-26-1w, Hubbard Pool originally completed at 3,685 feet is preparing to plug back to Layton sand and shoot. Comar Oil Co.'s No. 2 Priboth, NW cor. Section 21-29-1w, has been abandoned at 1,270 feet.

Blaine County

C. E. Love and others are repairing the rig for No. 1 Phillips, C NW SW, Section 13-19-10w, to be a deep test.

Lincoln County

Magnolia Petroleum Co. made location for No. 1 Decker, SE cor. SW SE, Section 8-14-4.

Marshall County

Helman & Gill's No. 1 Storey, SW cor. NW, Section 3-5s-5, has been abandoned at 700 feet.

McIntosh County

Spring Valley Oil Co. has the rig on the ground for No. 1 Carr, SE cor. NE NW, Section 16-10-13. J. E. Weible's No. 2 Bruner, NE cor. SW SE SW, Section 25-11-16, is dry and abandoned at 2,061 feet.

Muskogee County

Tulkogee Oil Co. has a machine on the location for No. 1 Thompson, NW cor. NE, Section 31-15-20. L. T. Haney's No. 1 Linder, C SE, Section 33-13-18, is dry and abandoned at 2,368 feet.

Okfuskee County

Minnehoma Oil Co. made location for No. 2 Fixico, SW cor. SE, Section 29-12-10. Mid-Continent Petroleum Co.'s No. 1 Harjo, NW cor. NE, Section 33-10-9, is drilling at 505 feet. Minnehoma Oil Co.'s No. 1 Johnson, SE cor. NW, Section 34-11-11, has been abandoned at 3,841 feet.

Oklahoma County

Magnolia Petroleum Co.'s No. 1 Noble, NW cor. SW SW, Section 30-12-2w, is drilling at 160 feet.

Okmulgee County

Denton & Marshall moved a machine to the location for No. 1 Jefferson, SE cor. NE SW, Section 25-15-14. J. L. Kirkland & Son's No. 1 Carr, SE cor. SW SW, Section 17-15-13, was completed for 20 bbls. in sand 1,519-68 feet. Becker & Hutchinson's No. 3 Berryhill, NE cor. NW NW, Section 8-14-13, is dry and abandoned at 2,195 feet.

Osage County

Tidal Oil Co. has a machine on the location for No. 1 SW cor. SE, Section 24-24-8. Cellar has been dug for No. 1 SW cor. NE, Section 25-24-8. L. G. Stanley is moving a machine to the location for No. 6 NW cor. SW SW SE, Section 36-22-8. Location has been made for No. 1 SE cor. NE, Section 14-21-8. Lewis Production Co. and others' No. 3 SE cor. NE SE, Section 15-26-6, Burbank Pool made 420 bbls. from Burbank sand 2,976-3,008 feet.

Pawnee County

Devonian Oil Co.'s No. 1 Copeland, SW cor. SE SW, Section 26-20-9, is spudding. Hay and others moved a machine to the location for No. 1 Copeland, SE cor. SW SW, Section 26-20-9. Magnolia Petroleum Co.'s No. 1 School land, NE cor. Section 36-23-4, is dry and abandoned at 4,380 feet. Peter Adamson Jr.'s No. 3 Thomas, SE cor. NW, Section 25-21-8, is dry and abandoned at 1,115 feet in Layton sand topped at 1,080 feet. J. H. Markham, Jr. and others' No. 8 Reynolds, SW cor. Section 25-21-8, made 10 bbls. from Layton sand 1,260-1,308 feet. Edwards and others' No. 1 Byers, SW cor. NW NE, Section 31-21-9, has been abandoned at 1,123 feet. Peerless Oil Co. and others' No. 1 Nobles, NW cor. NE NE, Section 20-20-9, was completed for 4,000,000 feet of gas in Bartlesville sand 2,315-20 feet after plugging back from 2,965 feet in Hominy sand.

Pontotoc County

Moore & Curran's No. 1 Allen, SE cor. SW, Section 23-5-5, is dry and abandoned at 1,462 feet. Louisiana Oil Refining Co.'s No. 17 Perry, NW cor. NE NE, Section 19-5-8, Allen Pool was completed for 250 bbls. in Cromwell sand 2,815-74 feet. Westheimer & Daube's No. 1 Bussby, NW cor. Section 4-4-8, is dry and abandoned at 1,670 feet.

Pottawatomie County

Martin & Irwin made location for No. 1 Kelly, SE cor. NE NE, Section 2-7-4. Amerada Petroleum Corp. made location for No. 1 Richardson, NE cor. SW, Section 16-7-4, St. Louis Area. Sinclair Oil & Gas Co. made location for No. 3 Calvin, SW cor. SE SW, Section 7-8-5, Maud Pool. Laurel Oil & Gas Co. has the cellar dug for No. 4 Billington, NW cor. NE NW, Section 18-8-5. Amerada Petroleum Corp. made location for No. 2 Richardson, NW cor. NE SW, Section 16-7-4. Atlantic Oil Producing Co. & Independent Oil & Gas Co.'s No. 1 School land, SW cor. NE, Section 16-7-4, is a rig on the ground.

Minnehoma Oil Co. has dug the cellar for No. 1 Simms, NW cor. SE, Section 16-7-4. White Eagle Oil & Refining Co. made location for No. 1 Latimer, SE cor. SW NW, Section 16-7-4. Pierce Petroleum Corp. made location for No. 1 Hubanks, SW cor. SE NW, Section 17-7-4. Magnolia Petroleum Co. made location for No. 2 Billington, NE cor. NW, Section 22-7-4.

Superior Oil Corp.'s No. 1 Jones, SW cor. NW NE, Section 24-8-2, is dry and abandoned at 5,516 feet. Sinclair Oil & Gas Co.'s No. 1 Calvin, SE cor. SW, Section 7-8-5, Maud Pool, made 2,005 bbls. from Hunton lime 4,077-79 feet. Twin State Oil Co.'s No. 1 Colvin, NE cor. SW, Section 7-8-5, was completed for 250 bbls. in Hunton lime 4,033-4,096 feet. Pure Oil Co.'s No. 2 N. Wiley, NE cor. NW, Section 7-8-5, was abandoned at 4,237 feet. Gypsy Oil Co.'s No. 4 Miller, NW cor. NE SE, Section 18-8-5, made 2,015 bbls. from Misener sand 4,015-28 feet.

Pure Oil Co.'s No. 2 Urbansky, NE cor. SW NE, Section 19-8-5, was completed for 587 bbls. in Hunton lime 4,196-4,215 feet. Magnolia Petroleum Co.'s No. 5 Robbins, SW cor. SE, Section 15-7-4, St. Louis Pool, has been shut in for 8,500,000 feet of gas in Hunton lime 3,760-3,829 feet. Blackwell Oil & Gas Co.'s No. 2 Lewis, SE cor. SW NE, Section 24-7-4, drilled to 4,695 feet in Wilcox sand and was plugged back to 3,400 feet and made 20 bbls. Sinclair Oil & Gas Co.'s No. 6 Blandin, SE cor. NW SW, Section 24-7-4, is pumping 25 bbls. from 4,256 feet in Simpson sand after plugging back from 4,381 feet in Wilcox sand.

Westheimer & Daube's No. 6 Freid, SE cor. SW NW, Section 24-7-4, is producing 125 bbls. from Simpson sand 4,253-96 feet. Gypsy Oil Co.'s No. 3 Bruno, SW cor. NE NW, Section 25-7-4, is producing 3 bbls. from 4,444 feet in Simpson sand after plugging back from 4,508 feet in Wilcox sand. The Prairie Oil & Gas Co.'s No. 4 Campbell, SW cor. SE SW, Section 18-8-5, Maud Pool, made 870 bbls. from Hunton lime 4,203-07 feet. Mid-Kansas Oil & Gas Co.'s No. 2 Gesselman, NW cor. SW NW, Section 25-7-4, St. Louis Pool, made 645 bbls. from Wilcox sand 4,400-11 feet. Gypsy Oil Co.'s No. 2 Roseman, SW cor. SE NW NE, Section 26-7-4, was completed for

(Continued on Page 128)

OIL MAP ALTERED CONSIDERABLY IN THE SEDGWICK AREA, KANSAS

By J. L. Dwyer

The map was altered considerably last week in the Sedgwick area. The completion of three additional wells in the outside part of the field has caused a changed appearance, especially in the northeast part of the region, where one well came in with a good natural flow, then declined rapidly, and then made a good comeback.

The Gypsy Oil Co., Marland Production Co., and Bu-Vi-Bar Petroleum Co.'s No. 1 Emerich, an odd location, and a direct south offset to the Mary Jane Oil Co.'s No. 1 Fitch, in the SW, Section 6-26-1e, had the Simpson sand 3,428-33 feet, and had an initial production of 1,310 bbls. by the swab. This well was calculated to be 50 feet lower than the Mary Jane well. The Emerich well is holding up in good shape. The other well in this immediate territory has displayed some freakish tactics. It is the Gypsy, Marland, Bu-Vi-Bar's No. 1 Branch, and is a diagonal southeast offset to the Mary Jane well. The Branch well started in with a natural flow which exceeded the other wells in this region. It had the Simpson sand 3,375-81 feet, and flowed 1,400 bbls. naturally the first 24 hours. It was 3 feet higher than the Mary Jane well. The Branch well decreased rapidly after it was producing for three days, and went down to 179 bbls. on Friday of last week. Efforts to revive the well were successful, and it came back with 1,033 bbls. on Sunday morning, and 693 bbls. on Monday morning of this week. The well has started making some water, however, and on Monday it made 16 bbls. of water with the oil.

Skelly-Davis Well

In the northwest part of the pool, the Skelly Oil Co. and Davis have drilled in No. 1 Wilson, NE cor. NW NE, Section 1-26-1w. This well is just two locations south of the Smyser well drilled by the Aladdin Petroleum Co., T. B. Slick and others. The Smyser well has not been startling in output and the Skelly-Davis well seems to be inclined to follow the general nature of the Smyser well. The Skelly-Davis well had the regular Simpson sand 3,377-87 feet, and swabbed 400 bbls. daily. The column of oil was swabbed down clear to bottom, however, and it is reported that the owners will drill the well deeper in an effort to find additional production.

An examination of the performance of the wells listed above will influence the opinion that they have added very little to the general prospects of developing a pool of big production in this part of Kansas. All three of the wells have been inclined to act like the other outside wells which have been drilled in this area. They seem to help eliminate the possibility of discovering another Eldorado Field in this part of the State in spite of the fact that they furnish additional production for the region. The present outlook for the Sedgwick County area seems to be a well strung-out proposition. The yield of the wells will unquestionably be profitable but not to the extent that they will cause any great rush of work in the income tax unit of the Government.

Taking a glance at the Sedgwick region, the spot around the discovery well seems most likely to furnish wells which have a good initial and hold their rate of flow very well. All of the wells around the Gypsy Oil Co., Marland Production Co., and Bu-Vi-Bar Petroleum Co.'s No. 1 Wright in Section 12-26-1w, have showed a good rate of sustained production, with a rather slow decline curve. When the first well was drilled, the consensus of geological opinion indicated that the best prospects of the pool would be limited to 15 or 20 locations. This figure was naturally erased when the Marland Production Co.'s No. 1 Goodrich in Section 16-25-1e, 6 miles away, was drilled in, but with the discouraging results obtained from the group of wells situated between the discovery well and the Goodrich well, the pendulum of opinion is gradually swinging back to the original theory for the region.

Hillsboro District

The Hillsboro district of Marion County is still attracting interest. This territory was first brought to the limelight when Courtney B. Davis' No. 1 Rample in Section 7-19-3, found the chat productive. The Empire Gas & Fuel Co.'s well offsetting the Davis well missed the chat and was drilled to a deeper formation with good results. The other two offsets were drilled deeper and found production. They are owned by the Shell Petroleum Corp. and the Darby Petroleum Co. respectively. The present production of these wells are Shell Petroleum Corp., 400 bbls., Darby Petroleum Co., 160 bbls., and Empire Oil & Refining Co., 350 bbls. On the strength of this output, the Prairie Pipe Line Co. has started a new 6-inch line to the Hillsboro region from its Florence station in the southeast part of Marion County. The new line will cover a distance of about 20 miles.

In Harvey County, the Shell Petroleum

(Continued on Page 84)

WILDCAT OPERATIONS IN KANSAS

BARBER COUNTY

Company, farm and location—	Remarks:
Allison & Fitzwilliams' No. 1 Morrisse, C NW SE SE Sec. 9-30-12w	Rig.
Barbara Oil Co.'s No. 1 Blunk, C NE NW Sec. 20-34-13w	Drlg. 4,932 ft.
Barbara Oil Co.'s No. 1 Lytle, CNL NE NE, Sec. 12-33-13w	Drlg. 4,516 ft.
Rolland et al's No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w	Shut down 4,223 ft.

BARTON COUNTY

Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w	Shut down 3,943 ft.
Mid-West Exploration Co.'s No. 1 Karst, SW cor. SW Sec. 11-16-15w	Drlg. 3,465 ft.

BUTLER COUNTY

LaRobb et al's No. 1 Bronsenger, NE cor. SW Sec. 24-27-3	Rig.
Aladdin Petroleum Co.'s No. 1 Bronsenger, NE cor. SE Sec. 24-27-3	Rig.
Smith & Ash's No. 1 Donnelly, NE cor. NE Sec. 8-24-6	Rig.

CHASE COUNTY

Griener & Fowler's No. 1 Carson, NE cor. NE Sec. 9-21-7	Shut down 3,162 ft.

COWLEY COUNTY

Roth & Faurot's No. 1 Ridding, SE cor. NW Sec. 31-32-6	Shut down 3,250 ft.
Pyle & Sutter's No. 1 Lindstrom, SW cor. NE Sec. 9-35-4	Shut down 3,380 ft.
J. B. Markey's No. 1 Tatum, SE cor. SW Sec. 11-31-6	Shut down 520 ft.
Wakefield & Osborne's No. 1 Osborne, NW cor. NE Sec. 18-30-5	Rig.

ELLIS COUNTY

Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w	Shut down 1,100 ft.
Finney & Weiner's No. 1 Freeman, SE cor. SW Sec. 24-15-20w	Spudded and shut down.
Labette Oil Co.'s No. 1 Urban, NE cor. NW NW Sec. 19-15-16w	Drlg. 3,790 ft.
Atlantic Oil Prod. Co.-D. B. Mason's No. 1 Gorham estate, C SE SE Sec. 35-15-16w	Drlg. 3,014 ft.

(Continued on Page 100)

RIGHT DOWN THE LINE - *A MILE A DAY*

This is not unusual performance *for Buckeyes.* Setting the pace is a thirty-year-old habit for Buckeye Pipe Line Ditchers. The many thousands of them in field service have established records for speed, endurance and dependability, and reducing excavating costs to a minimum.

In the world's oil and gas fields, more Buckeyes are engaged than all other makes combined. Most owners use them exclusively, in many cases employing a great number of them for extensive operations. The reason for this marked performance is due to the fact that the Buckeye has been built and developed to the exact specifications of leading pipe line engineers and contractors.

Outstanding among its popular working features are: its heavy duty industrial motor; efficient heavy duty transmission; positive acting conveyor; the rugged construction of its digging wheel; its Alligator (crawler) traction for traveling over rough or soft surfaces; and one-man control for all operations.

Write us for full details of construction and performance—interesting literature on request.

THE BUCKEYE TRACTION DITCHER CO.
FINDLAY, OHIO

THERE'S A BUCKEYE SALES AND SERVICE OFFICE NEAR YOU

for over thirty years
Buckeye

Joe Bruner Field Extended 2 Miles

Producers' Opinion Is That It May Extend 14 Miles and Look for 100,000-Bbl. Production. Pipe Line Plans

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Texas, Mar. 11.—The past week was one of important developments in the Joe Bruner Field in Caldwell County. Cranfill & Reynolds' No. 1 Northcutt increased to 2,000 bbls. a day after cutting the fault plane and getting only 50 feet of chalk and with an initial production of only 300 bbls. a day. L. W. Capps' No. 1 New at 2,745 feet is flowing by heads and estimated at about 300 bbls. a day and the Humble Oil & Refining Co.'s No. 1 Hanson is running high. No. 1 Northcutt, cutting the fault plane, shows where the west edge of the field is at that point and No. 1 New shows that the field extends at least that far east.

No. 1 New is nearly 2 miles northeast of No. 1 Northcutt and amounts to a big extension of the field. From one extreme to the other it makes the field about 6 miles long and oil men are raising their estimates and believe now that the field may extend for a total length of 14 miles and may reach a peak of 100,000 bbls. a day. The last couple of miles at the northeast end of the field has seen practically no drilling and with excellent chances for some big wells to be developed there.

Shell Petroleum Co. interests are arranging to run a pipe line from the field north to a connection with its pipe line that extends from West Texas to Houston. Of approximately 30,000 bbls. a day now coming from the Joe Bruner Field 20,000 bbls. goes to the Gulf, Shell and Humble companies, and the understanding is the Gulf will provide some outlet for its oil. The Humble is arranging to build an 8-inch line from the field to West Columbia. Its first plans were to run the oil to Ingleside but the Bruner oil will not mix with the West Texas oil and hence the plans to join into the lines at West Columbia. Recently reports were out that the Humble had changed its plans and would run the oil to Ingleside, but this seems to be untrue. The Shell's line north to its main trunk line from West Texas will be 6-inch.

Refugio Field

In the Refugio Field the Union Exporation Co.'s No. 1 Holmes Heard at 3,782 feet and the Union Exporation Co. and William F. Morgan's No. 2 Leslie Adkins at 3,790, both in the north end of the field, have been abandoned. The production department tried more than a month to make wells of them. They showed considerable gas and also oil but were finally given up. The only other important feature of that field is the Houston Gulf Gas Co.'s No. 1 Rooke. It is nearly a mile west of the nearest production at the south end of the field and hence is nearly wildcat. It is down 1,800 feet and has had one gas blow out that did no damage.

Laredo District

Last week for one of the few weeks in the past five years the Laredo district did not report a producer completed. The J. G. Mackay's No. 1 Richardson in the Simms gas field and north of the Cole gas field, reported last week as a probable gas well due to a drill steam test, was being bailed late in the week, but if it came in it was too late to get into the reports.

COMPLETIONS

Bastrop County

The Texas Company's No. 2 Yoast, A. Garcia Survey, was completed at 1,369 feet making 800 bbls.

The Texas Company's No. 3 Yoast, A. Garcia Survey, has been completed at 1,365 feet for 400 bbls.

Caldwell County

Gulf Production Co.'s No. 4 R. W. Carter, Gerren Hinds Survey, was completed at 2,665 feet making 600 bbls. by heads in 24 hours.

Gulf Production Co.'s No. 2 W. O. Allen, Gerren Hinds Survey, at 2,728 feet completed small well, not gauged but estimated 50 bbls.

Gulf Production Co.'s No. 2 M. J. Tiller, Gerren Hinds Survey, was completed at 2,746 feet, making probably 50 bbls. on pump.

Gulf Production Co.'s No. 5 M. J. Tiller, Gerren Hinds Survey, at 2,739 feet made estimated 75 bbls.

Humble Oil & Refining Co.'s No. 3 W. O. Allen, Gerren Hinds Survey, was completed at 2,725 feet, pumping an estimated 50 bbls.

Humble Oil & Refining Co.'s No. A-2 Moses & Baggett was completed at 2,675 feet flowing 700 bbls.

Humble Oil & Refining Co.'s No. A-3 Moses & Baggett was completed at 2,675 feet flowing 75 bbls. an hour initial.

Humble Oil & Refining Co.'s No. 1 Miles, James Hinds Survey, at completion flowed 25 bbls. an hour.

Humble Oil & Refining Co.'s No. 5 J. B. Tiller, Gerren Hinds Survey, was completed at 2,742 feet estimated at 50 bbls.

C. E. Lange's No. 1 W. P. Walker, Gerren Hinds Survey, plugged back to 2,691 feet from 2,771 feet flowed 300 bbls.

William F. Morgan's No. 1 C. Malone, A. Floyd Survey, was completed at 2,605 feet 100 to 200 bbls. from chalk.

Shell Petroleum Corp.'s No. 4 Moses at 2,789 feet flowed 565 bbls. first 24 hours.

Shell Petroleum Corp.'s No. 4 Floyd Tiller, was completed at 2,683 feet 1,240 bbls. for first 24 hours.

Shell Petroleum Corp.'s No. 5 Floyd Tiller, was completed at 2,684 feet flowing 850 bbls. first 12 hours.

J. J. Capps' No. 1 G. W. New, James Hinds Survey was completed at 2,745 feet flowing by heads estimated 300 bbls. daily.

Refugio County

Houston Oil Co.'s No. 1 Receiver, 1 mile west of No. 1 Nellie Cummins, completed at 3,700 feet, is making estimated 50,000,000 feet of gas with 1,400 pounds rock pressure.

Union Exploration Co.-William F. Morgan's No. 1 Rooke was completed at 3,700 feet testing 1,500 pounds rock pressure and estimated at 50,000,000 feet of gas.

ABANDONED TESTS

Bastrop County

Cranfill & Reynolds' No. 1 C. R. Daywood, Addison Litton Survey, at 2,245 feet was abandoned dry in Edwards lime topped 2,238 feet.

Bee County

Moody-Seagraves interest have taken over D. Hewitt's No. 1 Schultz, No. 1 Vogus, No. 1 Ruckman, No. 1 Hicks and C. F. Nichols' No. 2 Hicks & Hall in county on acreage of Dr. Hewitt on which No. 1 Ray was completed, making estimated 250,000,000 feet of gas.

Caldwell County

Victor Oil Co.'s No. 1 Briscoe, P. B. McCearly Survey, location has been abandoned, same as A. Buchanan's No. 1 Briscoe.

Shell Petroleum Corp.'s No. B-3, R. W. Carter, location only, was abandoned.

Guadalupe County

Shell Petroleum Co.'s No. 1 Charles Grein, A. Mansola Survey, was abandoned at 2,238 feet in Edwards with sulphur water.

Gonzales County

Cranfill & Reynolds' No. 1 J. F. Webb, Winslow Turner Survey, was abandoned dry at 4,265 feet.

Hays County

Estess-Moore & King's No. 1 C. N. Sledge, Hunton & Jones Survey, 1 mile from Kyle, was abandoned at 804 feet.

Jackson County

Wright Brothers' No. 6 Drushell has been abandoned.

Refugio County

Dunlap & Wilkinson's No. 1 Rooke at 2,750 feet was abandoned and rig moved off.

Houston Oil Co.'s No. 1 Blanco River abandoned location due to litigation.

Union Exploration Co.'s No. 1 Holmes Heard, Tract 3, Block 8, at 3,782 feet was abandoned dry.

Union Exploration Co.-William F. Morgan's No. 2 Leslie Adkins, Block 9, was abandoned dry at 3,720 feet.

Starr County

Crays & McCardle's No. 1 Hicks & Hicks, Perdernal Grant, abandoned at 251 feet.

San Patricio County

C. I. Albertson's No. 1 Boscamp, W. R. Hazen Survey, Block 10, abandoned at 1,420 feet, hole lost.

Zavala County

Col. Ike T. Proyor's No. 2 Fee was abandoned at 1,472 feet in igneous plug.

Bastrop County

Sun Oil Co.'s No. 1 E. E. Barnett, L. C. Cunningham Survey, 870 feet southeast lines, 150 feet northeast lines, is drilling at 1,435 feet.

Bexar County

J. J. Vurl's No. 1 F. P. Carbec, Survey 300 1-6, Section 5, is location 1,320 feet east line, 660 feet south line.

Caldwell County

Gulf Production Co.'s No. 6 Carter, has derrick up 300 feet west of No. 5 and 300 feet south of No. 2.

Gulf Production Co.'s No. 7 Carter has derrick up 300 feet east of No. 4.

Humble Oil & Refining Co.'s No. 1 L. G. Hanzon, is drilling at 2,100 feet in Taylor marl.

Humble Oil & Refining Co.'s No. B-1 Moses & Baggett, has derrick up.

Humble Oil & Refining Co.'s No. A-2 J. R. Tiller, has derrick up.

Humble Oil & Refining Co.'s No. B-2 J. R. Tiller, has its derrick up.

Luling Oil & Gas Co.'s No. 1 G. R. Carter, has derrick up.

Shell Petroleum Corp.'s No. 8 F. Tiller, 300 feet west of No. 6, is moving in rig.

Sun Oil Co.'s No. 6 Malone, A. Floyd Survey, 300 feet southeast of No. 4, has derrick up.

Magnolia Petroleum Co.'s No. 1 F. A. Whitley, Samuel Highsmith Survey, is location 300 feet CNEL.

Guadalupe County

Simms Oil Co. is moving south and west of No. 1 Jandt for another test.

Grayburg Oil Co.'s No. 1 Sophie Haensel is location.

The Texas Company's No. 1 Lambrecht has been spudded in 2 miles southeast of Shell's No. 1 Grein.

Shell Petroleum Corp.'s No. 2 Charles Grein, 600 feet southwest of No. 1, is moving to new location.

Refugio County

Mission Drilling Co.'s No. 1 Mitchell,

(Continued on Page 125)

WELL IN MAVERICK COUNTY FLOWS 150 BBLS. A DAY AT 3,007 FEET

By B. D. Stevenson

SAN ANTONIO, Texas, Mar. 11.—The outstanding feature in wildcat areas in Southwest Texas the past week was unquestionably the Rycade Oil Corp.'s No. 3 Chittim, which came in presumably from the Edwards lime at 3,007 feet in Maverick County, flowing over the crown block through 10-inch casing and later settling to about 150 to 200 bbls. per day. It was then making heads at intervals of about every six hours with smaller heads every few minutes. The well is about 15 miles northeast of Eagle Pass. It is located about 175 feet north of No. 1 Chittim which reached a total depth of 5,640 feet, and which gauged 28,900,000 feet of gas and made an estimated 75 to 100 bbls. of oil of very light gravity. No. 1 encountered the gas at 5,515 feet where it made 2,000,000 feet and increased down to 5,588 feet. It sidetracked at 5,640 and went back to 4,115 and drilled to 5,688 feet and was abandoned. One of the features of the situation is that No. 1 had salt water at about the depth where the N. 3 is making pipe line oil of about 40 gravity.

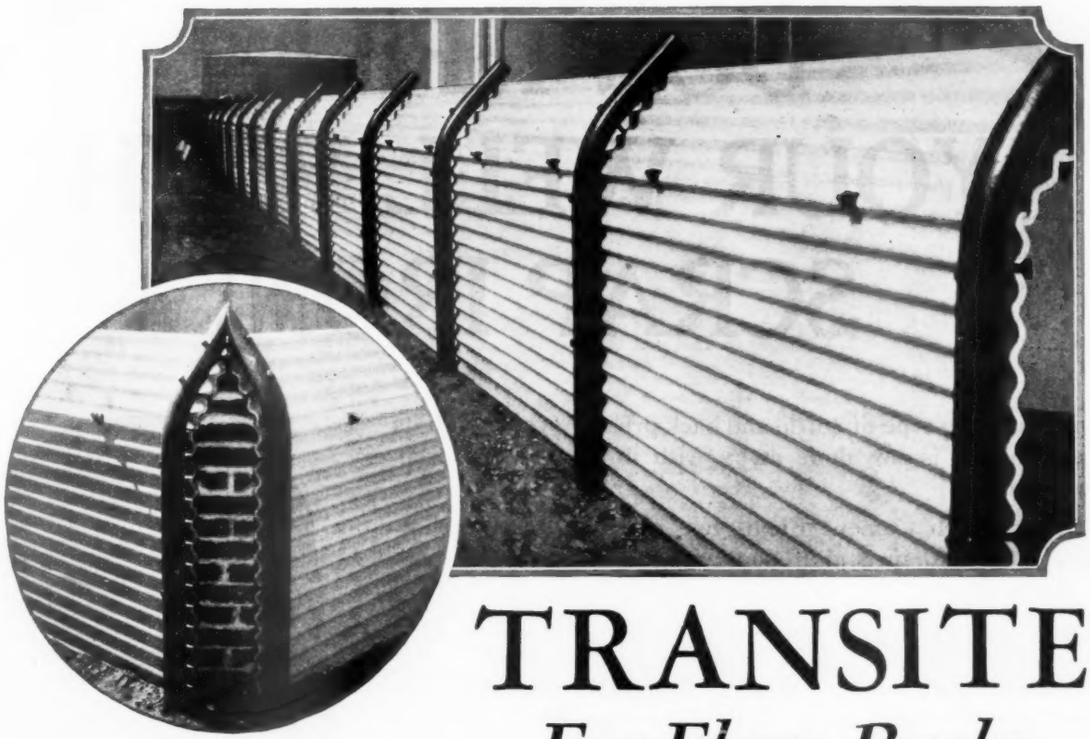
There is some question whether the well is in the Edwards lime or some other formation. The identification of formations in the other wells was not completely definite. It was thought the Edwards was topped at 3,060 feet in No. 1 but this was afterward called into question. Rycade Oil Corp. has probably spent $2,000,000 prospecting on the Chittim and Sullivan ranches in Maverick County. Its No. 2 Chittim, which is 2 miles south and 1 mile east of the Nos. 1 and 3 drilled to a total depth of 7,635 feet, and No. 3 Sullivan located 6 miles northwest was drilled to a total depth of 5,542 feet and abandoned as dry, though at 5,125 feet it ran into 2,000,000 feet of gas but which failed to increase in volume when the well was deepened.

It is believed that there is a structure in that part of Maverick County extending northwest and southeast for a distance of 45 miles and the Rycade Oil Corp. has about 200,000 acres in a solid block with its wells in the center of the block. In addition to the three tests on the Chittim and three on the Sullivan the Rycade drilled two or three other shallower tests 5 or 6 miles nearer to Eagle Pass. The No. 1 Chittim, the first test to attract attention, was started back in 1925 and was finally abandoned last August. The No. 2 Chittim and the No. 3 Sullivan were each abandoned last month.

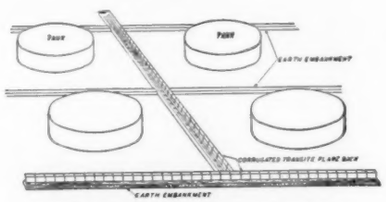
Since the No. 3 Chittim blew in there has been a continual stream of oil men headed for Maverick County and prominent officials of major companies among them. There is no chance for anyone to get anything close to the well unless they can buy from the Rycade, but there is territory northwest and southeast of it. Considerable of this was leased up in the spring of 1927 at the time the gas in the Rycade Oil Corp.'s No. 1 Chittim was gauged at 28,900,000 feet.

Elsewhere in Southwest Texas wildcatting was somewhat devoid of interest. In the Gonzales territory where the Empire Gas & Fuel Co.'s No. 1 Norwood is flowing 140 bbls. of oil a day from the top of the Austin chalk at 3,779 feet, Cranfill & Reynolds' No. 1 Webb, located

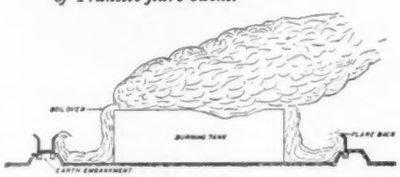
(Continued on Page 126)



Large view above shows typical Transite flare-back construction. Transite retains its efficiency and shipshape appearance permanently. In the circle is shown approved corner construction.



Method of segregating portions of tank farm from each other by means of Transite flare-backs.



Action of Transite flare-backs in turning back wave of burning foam.

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TRANSITE is the ideal material for flare-back construction. It is manufactured of indestructible Asbestos and Portland Cement, united under tremendous pressure to form a solid, homogeneous, monolithic sheet. Transite cannot rust, rot, corrode or burn. It is light in weight and easily and quickly erected, although at the same time well capable of withstanding the flare-back from a burning tank.

Dismantled and re-erected quickly, economically

The use of Transite for flare-backs is more advantageous than brick, tile or concrete, for while these more expensive and bulky materials are hard to move, Transite flare-backs, once they are erected, can be dismantled and re-constructed with comparatively little difficulty.

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DON'T FILL YOUR WELL WITH SCRAP IRON!

The old cast iron type of gui de and back pressure valve with its troubles in drilling out is now done away with in the Baker-Burch Cement Float-Shoe.

The Baker-Burch Cement Float-Shoe is a plain casing shoe with a concrete, guide-shaped plug containing a composition ball check valve and seat.

EASIER TO DRILL OUT

The cement plug is much easier drilled out than cast iron. With the old type of cast iron float and guide, drilling out was always quite a job because the cement reinforced the cast iron a great deal. It was often so hard to drill out that the vibration wrecked the cement job.

NO IRON IN THE HOLE

The well is left free and clear of any iron which would interfere with further drilling and coring operations—especially coring right under the shoe.

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Ohio Gets Record Champagnolle Well

Semiwildcat Starts Flowing at Rate of 500 Bbls. Hourly. Shut In for Storage. Will Test Abandoned Wells Again

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Mar. 11.—The biggest well Champagnolle has yet produced, and a semiwildcat at that, is the Ohio Oil Co.'s No. 1 Raulston in the SE cor., NE SE, Section 12-17-14, bailed in Saturday morning flowing 500 bbls. the first hour and closed in for lack of storage. There were hopes, of course, of a producer; but nothing of this sort.

Production is from 4 feet of sand, total depth 3,037 feet with 6⅝-inch casing set at 3,007 feet.

Location of this phenomenal well is a half mile east of Simrall and others' No. 1 Finley which had salt water at 3,179 and 3,251 feet, and a mile northeast of Pure Oil Co.'s No. 1 Gaddy, abandoned as a salt water hole at 3,804 feet after it had failed to realize on any of the tests made at several levels. Also, it is a half-mile southwest of nearest production in the East Extension of the field, the two nearest wells being one a gasser and the other a producer at the same approximate depths, around 3,010 feet, with elevations practically the same.

This will be great encouragement in the test of a theory that has lately been developed by Champagnolle operators, particularly those in the extension, which is to the effect that the porosity of the pay in that part of the field is such that a drill stem test, common in this territory, might be deceptive. To prove or disprove this theory, Magna Production Co. is cementing back on No. 2 El Dorado Realty Co. in the NW cor. NW SW Section 8-17-13, the farthest east well in the district, abandoned as a dry hole at 3,238 feet, and will swab and bail around 3,000-3,100 feet whence most of the extension's production is coming. Lion Oil Refining Co., whose No. 5 Union Sawmill in the SW cor. NW NE Section 7-17-13, was reported this week abandoned as a junked hole at 4,533 feet—the deepest in that entire section of Union County—also is to back up and try again with a standard test in the producing horizon.

Deep Test Disappointing

The Lion well was one of a series of disappointments in proven areas, paralleling similar results in deep tests, wildcat and proven areas, during the week. Humble Oil & Refining Co.'s No. 2 Hain, Section 1-14-21, Irma Field of Nevada County, was abandoned in hard red sand at 3,780 feet. It did not have a show of anything but dust all the way down so far as available information is concerned. It is the deepest hole drilled so far along the Balcones fault which the Humble explored with a series of 30 or more deep and shallow tests from the Irma Pool to the Texas line three or four years ago, and its particular failure is explained as the location "being too close to the fault line." This explanation appears to be borne out by well logs showing that the fault is not perpendicular, but diagonal, slanting upward south to north. At any rate, the Humble is arranging to move the rig to a location several miles southwest in Columbia County to drill another deep hole.

Gulf Refining Co. abandoned its deep test in the old El Dorado East Field, No. 1 Woodley in Section 6-18-14, as a dry hole at 3,622 feet. It was an old test deepened from 3,143 feet where it was a salt water hole drilled by Woodley and others as No. 2 Townsend. At the same time the Gulf made location and has rig up for No. 1 Rosa Cook in the NW cor. SE NE Section 1-18-15, which it will core all the way down from the old East Field pay, a few hundred feet west. H. L. Hunt abandoned No. 6 J. D. Gregory in the NE cor. NE NW Section 15-17-14, offsetting production north, south and east as a salt water hole at 3,401 feet. He had 1,500 feet of salt water in the hole on a test of a shallow lense at 2,634-39 and a show of oil in the deep stuff at 3,271-3,332 feet.

Other Interesting Tests

While the Ohio's success with No. 1 Raulston will be in the front for the next week or so, considerable attention will be paid developments in the program of Bush and others, of El Dorado, for another semiwildcat in Section 4-17-13, No. 1 Stowe in the NW cor. SW of the section, a mile to a mile and a half east and northeast of nearest production. Particularly, because it is between and south of Champagnolle production and Joe Hurley and others' wildcat on the Arkansas Timber Co.'s land in Section 29-16-12, Calhoun County, a wildcat which has been holding as much or more attention as any other in that part of the country.

The fraternity got another kick out of last minute reports from C. H. McDonald's No. 1 Wilson in Section 25-15-18, midway between Louisiana (Smackover Light) and Stephens production which, Saturday morning, was making heads of 50 bbls. or so every two hours from 6 feet of sand, total depth 2,868 feet after setting liner. Tubing is to be run to see if it will flow.

Not such good news comes from Smitherman & McDonald's deep test in Haynesville, No. 1 Miller, Section 17-23-8, bailed at 4,755 feet without results. It was bailing again at 4,780 feet as the last test before abandoning as a dry hole. Thus ending the second lesson in deep drilling in Haynesville, the first having been much more encouraging in that it is still pumping a few barrels of oil after 2 years.

Falcon Drilling Co. put No. 3 Muslow, Section 29-20-15, Mooringsport district of Caddo Parish, on the pump for an initial 40 bbls. from 2,327 feet, regarded as pretty good for a 20-year-old pool, especially after it had stood for two months with mud in the hole. C. H. French also completed No. 4 Muslow in Section 31-21-15 just west of Pine Island, on the beam pumping 15 bbls. initial from the shallow stuff at 1,689 feet. Morehouse and Union Parishes each added a producer for the Monroe gas field, the location of the latter's making it rather interesting. It was Industrial Gas Co.'s No. 1 Hill in Section 9-20-3w, completed at 2,177 feet making 2,500,000 feet at 1,028 pounds initial. Volume is not much but the pressure is the highest any well in the entire Monroe Field has rocked up lately. The Morehouse well was Stovall Drilling Co.'s No. 2 Etheridge, Section 22-20-4, with 41,500,000 feet, total depth 2,147 feet. With respect to volume it is one of the best in the district during recent weeks.

East Texas Gassers

East Texas came back into the picture with two small gassers from the deeper pay and a failure in the same horizon. Nemours Corp.'s No. 4 Brumble in the B. C. Jordan Survey, made 5,000,000 feet from 2,265 feet after cementing back from 2,712 feet, and Natural Gas Producing Co.'s No. 8 Roquemore in the same headright, made 6,000,000 feet at 1,265 pounds, total depth 2,672 feet. Eureka Natural Gas Co.'s No. 1 Becknell in the Elijah Williams Survey was junked at 2,670 feet.

Whether or not Arkansas Natural Gas Co.'s new test in Urania, No. 10-B, Urania, 227 feet each and 360 north SW cor. SW NW, Section 17-10-2e, LaSalle Parish, is the long talked of deep test of that pool remains to be seen. H. L. Hunt set 6-inch at 1,492 feet on No. 5 Urania in Section 2-9-1e, Little Creek district of Urania, and has 1,200 feet of oil in the hole from 6 feet of sand, total depth 1,500 feet, and has rig up for No. 6 in the NE SW of the same section. Rendall and others made a test of the shallow sand 1,500 feet, which produced a gas blow out in No. 1 on the same lease, of No. 4 Urania, Section 1-10-1e, but got dust and the hole is shut down for orders.

In Webster Parish, J. W. Clark is testing 4 feet of sand at 2,756-60 feet in No. 1 Mayfield, Section 20-23-9, an offset to one small producer and to another well that would have produced had it been standardized at once, and in the opposite, western, end of the Sarepta-Shongaloo district, Magnolia Petroleum Co. is waiting for casing to test 9 feet of sand saturated with oil in No. 1 Denman, Section 1-22-11. Prompted largely by Palmer Corp.'s phenomenal No. 4 Tillman in Section 28-21-10, which has maintained its original volume and pressure after four months pull, Louisiana Oil Refining Corp. has rig up for No. 1 Gray in the NE cor. NW of the same section, designed for a deep Trinity test as the Palmer's was. The Palmer well was completed at 4,625 feet, making 22,000,000 feet at 960 pounds and has held up to that notch ever since, all other deep pay gassers in Cotton Valley, with one or two exceptions, having been larger in volume and sometimes larger rock pressure, but deteriorating with discouraging rapidity.

Production Down Slightly

Production from the division declined again, but only half as much as between last week and the week before. This week the difference was only 885 bbls., where between last week and the week before it was 1,769.

Louisiana shipments averaged 35,625 bbls. daily compared to 35,727 the week before and Arkansas' runs were 73,625 compared to 74,400. Daily average runs from the several pools were:

Louisiana	
Caddo, light	8,430
Caddo, heavy	3,160
Homer	3,980
Haynesville	5,525
DeSoto-Red River	4,055
Elm Grove	595
Bellevue	650
Cotton Valley	2,950
Urania	5,610
Pleasant Hill	460
Sarepta-Cartersville	200
Total	35,615
Arkansas	
El Dorado	4,505
Smackover, light	6,340
Smackover, heavy	50,450
Stephens	1,000
Nevada County	1,300
Lisbon	1,470
Champagnolle	8,460
Bradley	100
Total	73,625
Both states	109,240
Last week	110,125
Decrease	885

Caddo Parish

Greenwood—Eastern Carbon Co. set 101 feet of 10-inch and is drilling at 1,-

(Continued on Page 125)

CONSIDERABLE ACTIVITY SHOWN IN UNION AND CLAIBORNE AREAS

By D. H. Bancroft

SHREVEPORT, La., Mar. 11.—Final show down on deep tests in wildcat and proven areas in this division, with the approaching end of one or two others, leaves the situation unchanged with respect to new production. There isn't any—yet. Dixie Oil Co. abandoned No. 1 Gilbert in Section 27-21-5, Claiborne Parish, as a junked hole at 5,034 feet after tests at 4,200, and 4,326 feet developed only salt water. El Dorado Chief Oil Co., drilling No. 1 Baker in Section 26-20-7, is reported to be considering abandoning the test unless more positive results develop within the next 100 feet. They cored broken sand shale and lime from 2,908-25 feet the last 3 feet being solid sand showing salt water and are coring on down. However, two more deep tests in that part of the country are rumored about to get under way, one by Triangle Drilling Co., which is completing a block in the Sugar Creek district of southeastern Claiborne Parish and another by The Texas Company on its block in Claiborne and Union Parishes. Tentative location for the latter is said to have been made on the L. T. Porter farm in the SE cor. SW NW Section 9-21-2w, Union Parish.

There is considerable activity in this parish in the way of leasing, several of the major companies still buying scattered acreage on 10-year commercial leases as protection in the play for possible red beds production. Harris and others have 1,500 acres centering around Section 22-23-2e, a few miles north of Marion, and while it was taken on 5-year commercial leases with no drilling obligations, they are reported figuring on a well to start about June 1. T. B. Slick is paying rentals and renewing leases on his block of 17,000 acres in Claiborne Parish as fast as they come due. The original leases were three-year commercial and he is said to be renewing them for a similar period and to be considering three wells. Pepper and others of Junction City are assembling a block centering on the corner of Townships 22 and 23, Ranges 3 and 4w, partly in Claiborne and part in Union Parishes. Slicks' block is in Townships 22 and 23, Ranges 4 and 5w and Township 21-5 and is practically solid.

Woodley & Collins' No. 1 Harp, Section 22-22-7, Morehouse Parish, with identically the same surface elevation as The Texas Company's No. 1 Myers near by which caused considerable of a flurry a year ago by promising red bed production, is checking 30 feet higher on the Cane River marker at 1,250 feet. It is drilling at 2,122 feet and on the basis of the Cane River check is expected to pick up the Monroe gas rock between 2,450-80 feet.

Caddo Operations

In the northeastern part of the state D. C. R. Oil Co.'s No. 1 Hunter estate in Section 17-19-14, Caddo Parish, 9 miles north of Shreveport and 6 east of the numerous dry holes drilled in the Blanchard district during the past few years, had quite a bit of gas at 1,940 feet but salt water along with it and drilled on to 2,017 feet where it shut down.

Nemours Corp. (Dupont) which has been quietly buying production and prospective gas territory scattered in all proven and semiwildcat gas areas in this division, has derrick up for a test in the far southeastern corner of the parish,

(Continued on Page 122)

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HOUSTON FORT WORTH SHREVEPORT LOS ANGELES

Looks Like New Pool in New Mexico

Eddy County Well Drilled Deeper Increases Flow From 150 to 550 Bbls. Day. Operations in Rocky Mountain Area

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Mar. 9.—Flynn, Welch & Yates' No. 1 Jackson, in Eddy County, New Mexico, between the Artesia and Caprock Pools, was drilled 46 feet deeper and increased its flow from 150 bbls. to 550 bbls. a day, making it one of the best wells in that county for a long time and apparently opening a new pool. The Marland Production Co.'s No. 1 Lockhart, in Lea County, has shown an increase in oil with deeper drilling and is making around 200 bbls., the best day being 355 bbls. in 24 hours, though it is showing a little water. The Midwest Refining Co. has made a location for its No. 22 Gregory, NW SE SW, Section 31-25-36, in the Jal district in Lea County, and the Pecos Valley Gas Co. is starting two new wells in Section 5-17-28, in the Artesia Pool. A new location in Otero County is Flynn, Welch & Yates' No. 1 Donahue, C NW NE, Section 28-24-15. The Angel Peak Oil Co.'s test in the Kutz Canon district in San Juan County has increased its gas flow to 2,500,000 feet and is spraying a little oil.

In Utah, the Continental Oil Co.'s Boundary Butte test, in San Juan County, is having some difficulty in shutting off a flow of 5,000,000 to 6,000,000 feet of wet gas in the lower Pennsylvanian in an effort to drill deeper.

Several structural tests are to be drilled in northwestern Colorado this spring, the Texas Production Co. preparing to drill on the Bartram structure west of the Hiawatha Dome, and the Ohio Oil Co. moving in a rig to the Powder Wash district farther to the east. Some leasing is reported in eastern Colorado and the Vineland district southeast of Pueblo reports several wells getting under way. The Continental Oil Co. is starting two new wells in the Canon City district.

Wyoming has little news to report on account of the storms. Scouts have had some difficulty in getting out to the Carter Oil Co.'s well on the Billy Creek structure in Johnson, which was showing for an oil producer last week when it was shut in for tankage and to change over to cable tools to complete.

NEW MEXICO

An important development in Eddy County, New Mexico, took place this week in Flynn, Welch & Yates' No. 1 Jackson, C NE, Section 13-17-30, which encountered another oil horizon while drilling deeper and increased its output by around 400 bbls. per day. The well is about 12 miles northeast of the Artesia Pool and approximately 6 miles west of the Maljamar Pool. It was producing approximately 150 bbls. a day from the lime at 3,450 feet, this production coming from between the 8¼ and 6⅝-inch casings. At 3,484-96 feet it showed an increase and at a total depth of 3,506 feet it was reported making 550 bbls. The area had already begun to attract attention, and with the new development it is expected to become one of the hot spots in that territory. Last year Woolley and others' drilled on the McIntyre property in Section 21-17-30, nearly 3 miles to the west and south, but stopped at 1,850 feet where it was completed as a gas well with a flow of 1,000,000 feet.

Lea County

The Marland Production Co.'s No. 1 Lockhart, NW NW, Section 31-21-36, in Lea County, on the northern trend out of Winkler County, Texas, continued this week to be the most interesting operation in that area. This well has been making oil starting at 3,805 feet and has continued to improve with increased depth though it showed a little water at 3,942 feet. At 3,954-59 feet there was an increase in the oil and the water from the horizon at 3,942 feet was exhausted. At 3,950 feet it made 200 bbls. in 24 hours and the next day, February 23, at a total depth of 3,972 feet, it made 355 bbls., the highest record, so far, with one-fourth of a bailer of water per hour showing. It was then drilled to 3,990 feet at which depth it swabbed from 138 to 207 bbls. per day. This well is north of the Jal district and in the Eunice area where the Gypsy Oil Co. and the Empire Gas & Fuel Co. are the principal wildcatters along with the Marland company. Other developments for the week were mostly of a routine nature. The Empire Gas & Fuel Co.'s No. 1-C State, SW cor., Section 12-21-34, is drilling at 4,180 feet in lime. The top of the white lime was found at 4,163-68 feet and what was believed to be the top at 3,980 feet was above that horizon as disclosed by deeper drilling.

The Texas Production Co.'s No. 1 Shepherd, SE cor. NE, Section 6-26-37, in the Jal district, which has been fishing for tools the past month while making an average of about 140 bbls. a day, is still delayed at 3,223 feet and is milling on fishing tools. The same company's No. 1 Beulah Lynch, NW cor. SE, Section 34-20-34, is fishing for bit at 2,880 feet total depth, and its No. 1 Moberly, NW SE, Section 17-26-37, is still bottomed at 3,540 feet and circulating oil around five joints of pipe to loosen. Cecil Bordages' No. 1 Hughes, Section 27-19-38, in the Hobbs district, has been successful in swedging out the 8¼-inch casing which parted at 2,485 feet. Total depth is 4,012 feet. The Midwest Refining Co. has made a location for its No. 22 Gregory, NW SE SW, Section 31-25-37, in the Jal district, 1 mile north of the Texas Production Co.'s No. 1 Shepherd and 1½ miles south of the Marland's No. 1 Sholes. The footage is 990 feet from the south line and 1,650 feet from the west line. The same company's No. 13 Farnsworth, NE NE, Section 13-26-36, is drilling at 2,725 feet in lime, and its No. 19 Farnsworth, SW SW, Section 12-26-37, is still bottomed at 3,888 feet and is repairing bull wheel. Cranfill & Reynolds' No. 1 Wilson, NW NE, Section 23-25-36, is bottomed at 1,150 feet in salt and is pulling the 15½-inch. It topped the salt at 1,125 feet. The elevation is 3,073 feet. The Pueblo Oil Co.'s No. 1 Crosby, SW SW, Section 29-25-37, is drilling at 225 feet in red rock. The Marland Production Co.'s No. 1 Warren, SW SW, Section 28-20-38, near Nadine, is drilling at 4,066 feet in lime, and its No. 1 Reed, NE cor. SW, Section 22-20-36, is drilling at 4,190 feet in lime with nothing of importance developing below 3,740 feet where it had a show of oil. The Gypsy Oil Co.'s No. 1 Mattern, SW cor. SE, Section 24-21-36, in the Eunice district, is drilling at 1,515 feet in anhydrite. The elevation of this well is 3,519 feet. The Texas & Pacific Coal & Oil Co.'s No. 1 State, SE cor. SW, Section 22-23-36, is coring at 3,150 feet and showed saturation at 3,100-50 feet. A test will be made of the show. The Vacuum Oil Co.'s No. 1 State, CWL, Section 13-17-34, is drilling at 1,120 feet in red rock. A. D. Morton's No. 1, C NW, Section 29-11-38, Tatum district, is shut down at 1,540 feet with the 10-inch frozen at 1,490 feet. Henderson, Dexter & Blair's No. 1 McDonald & Jewett, SE cor., Section 18-20-34, is running the 10-inch at a total depth of 1,505 feet.

Twin Mounds District

In Eddy County, Sullivan & Randall's No. 1 State, NW cor. SW, Section 19-20-30, in the Twin Mounds district, is shut down at 503 feet for casing. George F. Getty, Inc.'s No. 4 Dooley, SW NW, Section 23-20-29, is drilling at 250 feet, and same firm's No. 3 Bates & Martin, SE cor. SW, Section 31-20-29 is fishing for tools at 195 feet. In the Artesia Pool, the Pecos Valley Gas Co. is starting two wells on the Vandergriff lease in Section 5-17-28. Its No. 3, located 1,340 feet west of east line and 2,315 feet north of south line, commenced spudding February 20 and is drilling at 200 feet in the red beds, and its No. 4, NW SE of the section, spudded and shut down at 40 feet. R. D. Compton's No. 1-C Vandergriff, NE SE, Section 1-17-27, is drilling at 1,940 feet in lime, and Flynn, Welch & Yates' No. 56 State, Section 6-19-28, is drilling at 2,804 feet in lime. Leonard & Levers' No. 1 Haggerty, NE cor. NW, Section 18-16-30, is still bottomed at 2,140 feet and running 6⅝-inch casing by tools.

A new operation in Otero County, west of the principal scene of activity, is Flynn, Welch & Yates' No. 1 Donahue, C NW NE, Section 28-24-15, just west of the Sacramento River. Materials are being moved in and the contract calls for a 2,500-foot test. The footage is 660 feet from the north line and 1,980 feet from the east line.

Chaves County

In Chaves County, R. T. Neal and others' No. 1 Russell, NW NW, Section 21-14-25, in the Hagerman district, is shut down in lime at 1,310 feet. It had an oil show at 1,030-35 feet. Same firm's No. 1 Jones, C Section 27-14-23, spudded on February 3 and shut down. The Transcontinental-California Oil Co.'s No. 1 Robbins, SE cor., Section 1-14-28, is drilling at 535 feet in anhydrite, and Snowden & McSweeney's No. 1 Merchant, NW NW, Section 27-15-23, is drilling at 3,950 feet in shale and lime. L. B. Tannehill's No. 1 Butler, SE cor., Section 15-12-24, is in sand at 800 feet with the 8¼-inch at 767 feet. The water has not yet been shut off.

Sloan & Smith's No. 1 Lovern, C SE, Section 4-3s-35, near Portales, in Roosevelt County, is drilling at 300 feet in a gray water sand.

The Transcontinental-California Oil Co.'s No. 1 McWhorter, SW NW, Section 6-3s-22, in De Baca County, is drilling at 3,315 feet in red shale.

In Valencia County, the Acme Development Co.'s No. 1 Santa Fe Railway, SW SW, Section 27-7s-4w, on the South Suwanee structure, is bottomed at 3,645 feet in gray lime, having made no new hole for several months, and is drilling up casing shoe.

In Torrance County, the Sinco Oil Co.'s No. 1 Katchin, NW Section 13-7n-7e, has a crooked hole at 90 feet and will skid the rig.

In Socorro County, Arnold and others' No. 2 Apache, SE NE, Section 13-6s-1w, is drilling at 1,575 feet in gumbo.

San Juan County

In San Juan County, the Continental Oil Co.'s No. 17 Santa Fe, C NE, Sec-

(Continued on Page 81)

HOME OIL WELL HOLDING STEADY; ROYALITE NO. 18 DOING 250 BBLS.

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Mar. 9.—Home Oil Co.'s No. 1, in the southern part of the Turner Valley, which on February 22 reached 620 bbls. a day with two separators, is holding steady, although the crude naphtha recovery sometimes varies. Royalite's No. 15, with an initial production of 300 bbls. of light crude, has settled somewhat, latest reports showing in the neighborhood of 250 bbls. The production is coming from the lower Kootenay formation at 3,035 feet. This is only the second well to secure production from this level, the old Southern Alberta, now Dalhousie's No. 1, having been first, with 60 bbls.

Important developments are expected from United Oils' No. 4 which is blowing at intervals of an hour and 15 minutes. It has been producing 75 bbls. This well is about 2 miles north and slightly east of Royalite's No. 4, and is believed to equal any well in the field from the Dalhousie sand. Drilling is to be continued to the big production level in the limestone, while the present flow will be taken from between two strings of casing. United's No. 4 is on the east side of the fold in a position very similar to Royalite's No. 4 and Dalhousie's No. 1. British Dominion's No. 2 half way between the New McDougall-Segur and McLeod wells has penetrated about 20 feet into the second McDougall-Segur sand with some oil.

Royalite Oil Co.'s No. 18, LSD 15, Section 12-20-3w5, got its first wet gas flow 60 feet in the lime at 3,885 feet, making 5,000,000 feet. Drilled deeper, it got a second flow measuring 13,000,000 feet a day. Royalite's No. 18 offsets Illinois-Alberta's No. 1. The crude naphtha recovery is unofficially estimated around 300 bbls.

Dalhousie Oil Co.'s No. 1, LSD 4, Section 18-20-2w5, after being frozen in the lime, has come back into production, making between 4,000,000 and 5,000,000 feet.

Royalite Operations

Royalite Oil Co.'s No. 12, LSD 3, Section 13-20-3w5, is drilling at 3,369 feet. Royalite's No. 14, LSD 4, Section 7-20-2w5, is in the deep lime at 3,332 feet. Royalite's No. 15, LSD 1, Section 12-20-3w5, is cleaning out and testing production in the lower Kootenay at 3,035 feet, and making around 250 bbls. of light crude. Royalite's No. 16, LSD 2, Section 12-20-3w5, is drilling at 4,939 feet; Royalite's No. 19, LSD 5, Section 6-20-2w5, at 3,785 feet. Royalite's No. 20, LSD 7, Section 12-20-3w5, is straightening a bad hole at 3,020 feet. Royalite's No. 21 is drilling at 2,549 feet. Royalite's No. 23, NW, Section 31-19-2w5, has spudded in, and is drilling at 58 feet.

Foothills Oil & Gas Co.'s No. 2, LSD 8, Section 1-20-3w5, is mixing mud preparatory to resuming drilling at 3,707 feet. Foothills' No. 3, NW, Section 8-19-2w5, has spudded in. Home Oil Co.'s No. feet and rigging up for standard tools. 2, LSD 14, Section 20-19-2w5, is at 5,158 Home's No. 3, same LSD, is drilling at 4,597 feet; Home's No. 4, Same section, at 2,210 feet. North West Associated's No. 1, LSD 6, Section 20-19-2w5, is drilling at 3,878 feet.

Okalta Oils' No. 1, LSD 1, Section 1-20-3w5, which has been bridged and frozen off, is cleaning out with a diamond

(Continued on Page 121)

Years ago Halliburton undertook the serious responsibility of making available to the oil industry the advantages of an epochal improvement in the process of oil well cementing. Has it discharged its obligation well? A study of the "impossible" tasks Halliburton men have accomplished as part of their everyday work; a glance at the costly cementing outfits kept always ready for action, and a study of the six-figure sums spent in development and research, tell the answer more eloquently than volumes!

HALLIBURTON OIL WELL CEMENTING CO.
Duncan, Oklahoma

New Shallow Pool in South Liberty

Good Extension Wells at Barbers Hill, Pierce Junction and New Clay Creek Districts. Lost Lake Test

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Mar. 11.—Opening of what appears to be another shallow sand pool on the South Liberty Dome, the bringing in of several good extension wells at Barbers Hill, Pierce Junction and the new Clay Creek district and a sharp increase in the daily average production for the division figured conspicuously in Gulf Coast developments the past week. The new production added to the Gulf in the past two weeks by good-sized wells was responsible for the daily average output of the coastal fields climbing 3,741 bbls. to a total of 144,437 bbls., or within a few barrels of the figure set for the week ending January 26 when the production was the highest of any time since June, 1927. The distribution of the Gulf's production by fields is indicated in the accompanying table, which includes also Southwest Texas, where daily average production also went up due to the new Bruner district. Figures are:

GULF COAST
Texas

Allen	62
Barbers Hill	6,136
Batson	1,402
Big Creek	5,641
Blue Ridge	4,149
Brenham	150
Boling	2,083
Clay Creek	2,200
Damon Mound	650
DeWalt	7,790
Fannette	857
Goose Creek	6,723
High Island	1,271
Hull	10,521
Humble	4,789
Jasper	10
Markham	380
Nash	600
North Dayton	490
Orange	2,822
Orchard	79
Pierce Junction	11,660
Raccoon Bend	2,760
Saratoga	956
Sour Lake	2,920
South Liberty-South Dayton	6,094
Spindletop	34,588
West Columbia	7,323
Total	125,106
Total previous week	120,783
Increase	4,323

South Louisiana

Anse La Butte	50
Bayou Bouillon	333
Edgerly	818
Jennings	794
Hackberry	5,073
Lockport	4,321
Sorrento	582
Starks	540
Sulphur	2,000
Sweet Lake	425
Vinton	4,365
Welsh	30
Total	19,331
Total previous week	19,913
Decrease	582
Total Gulf Coast	144,437
Total previous week	140,696
Increase	3,741

Southwest Texas

Dale	590
Bruner	28,127
Gonzales	120
Kingsville	285
Larremore	237
Luling*	12,580
Lytton Springs	1,141
Maverick	29
McMullen	25
Medina	67
Mirando	13,494
Refugio	1,248
Toast	2,541
Somerset	1,887
Total	62,371
Total previous week	61,435
Increase	936

*Includes: Caldwell County, 8,339 bbls.; Guadalupe County, 4,241 bbls.

In addition to the above mentioned developments the finding of what appears to be a very rich bearing oil sand in a wildcat at Pure Oil Co.'s Lost Lake Dome in northern Chambers County was causing a shift in interest of coastal operators to that area in view of a possible new field. The significance of this test, No. 1 Mayes, lies in the fact that it apparently has found a high part of the dome with the overlying sand being at 2,052-67 feet. It is the first land test of the six drilled or drilling at Lost Lake. The others found less likely sands considerably deeper and went into cap rock topped ranging between 3,600 and 4,000 feet. A drill stem test was to have been made in the No. 1 Mayes Sunday and if favorable casing will be run.

Other news of the week included rejuvenating of production at Allen Dome, Brazoria County, by the working over by Shell Petroleum Corp. of its No. 4 Allen, which came in flowing 157 bbls. daily, later increasing to 237 bbls. from sand at 5,109 feet.

Rycade Oil Corp. late in the week had failed so far to make a well in joint test with Humble Oil & Refining Co., the No. 1 Wisdom, which was expected to extend production on the south flank of Nash Dome more than 800 feet out from the dome. The test had set 200 feet of 4½-inch screen at 5,602 feet.

The Port Barre Dome of St. Landry Parish, Louisiana, and Bayou Blue Dome of Iberville Parish, on each of which wildcat showings in the last few weeks have indicated the possibilities of opening new fields still were on the unproductive list the past week. At the latter, Standard Oil Co.'s No. 1 Schwing, which found a favorable sand at 3,633-48 feet, was waiting on casing cement to set to test while at Port Barre, The Texas Company's No. 1 Botney Bay has been swabbing in an attempt to make the well flow.

New Area at Liberty

The Liberty Dome, on which four different pools and extension areas were opened within the past year, each followed by a flurry of drilling, added another shallow producing spot the middle of the week when Navarro Oil Co.'s No. 1 Community (Baldwin) came in flowing an estimated 300 bbls. daily of 21 gravity (corrected) oil from a sand at 1,717 feet. This well is approximately 1,000 feet south of the shallow pool recently opened by the Sun Oil Co. on its Mitchell tract and is about 600 feet west of the older deep producing area on the east flank. The north offset to the Navarro well, Fort Bend Oil Co.'s No. 1 Reviere, also has found an oil showing sand but slightly deeper at 2,177-96 feet. A string of 6⅝-inch has been cemented to test. These discoveries came just in time to cause Vacuum Oil Co. to decide to retain its Barrett lease, whose west line is about 500 feet east of the Navarro well. The company had only a few days before the expiration of the lease when the well came in and it immediately made location for No. 11 Barrett, which is being rigged. Vacuum formerly drilled a string of deep wells along the east line.

This makes three shallow pools opened within six months in line along the east side of the top of the dome and just within the string of deep flank wells. In the shallow sand pool to the north of the Navarro well, more small producers were completed, these being Sun Oil Co.'s No. 35 Mitchell, flowing 125 bbls. of 34 gravity oil, 1,292 feet, and The Texas Company's No. 19 Staiti, flowing at the rate of 336 bbls. of fluid, 15 per cent b.s. and water, daily from sand at 2,267 feet. The latter is on the south edge and is the deepest completed in that pool. Sun's well is on the extreme north edge of the shallow pool. The Texas Company's No. 13 Staiti is being rigged up to pump at 1,651 feet. Sun company's No. 41 Mitchell is drilling rock at 1,035 feet, and its No. 40 is drilling gumbo at 495 feet.

In the shallow district still further north, where only one test so far has made a successful completion, Brownie Babbette Oil Co.'s No. 1 Turner drilled into salt and was abandoned at 1,222 feet. Jefferson Oil Co.'s No. 1 Turner also was abandoned in cap rock at 1,059 feet. Empire Gas & Fuel Co.'s No. 2 Goggan is standing rigged up. Liberty Petroleum Co.'s No. 2 Turner is drilling lime at 1,778 feet.

Wildcat Test

Interest late in the week at Liberty also was shared by the northwest flank of the dome where Vacuum Oil Co.'s wildcat, No. 1 Trinity River, was bailing to test a sand at 3,531 feet. The Texas Company's No. 3 Pickett, a short distance away, is in a sandy shale at 4,150 feet without having picked up any showings. It is setting a string of 6⅝-inch casing to go deeper. The Texas Company's No. 5 Green is a derrick.

In the north extension of the deep sand flank sector on the east, Yount Lee Oil Co.'s No. 15 Mitchell set strainer at 3,505 feet but would not flow and is being rigged up to pump. No. 16 Mitchell is a derrick. Sun Oil Co.'s No. 39 Mitchell is drilling sand and shale at 1,727 feet.

Interest in the Clay Creek district of Washington County was strengthened further the past week with the completion of Sun Oil Co.'s No. 1 Carraway flowing initially at the rate of 2,000 bbls. daily from sand at 1,277 feet. The latter company's No. 2 C. Einman, however, would not flow and is to be put on the pump at 1,251 feet. No. 2 J. Grote also failed to make a well at 1,791 feet and is drilling deeper in lime and sand at 2,100 feet. No. 6 G. F. Grote has set 6⅝-inch casing at 904 feet.

Raccoon and Hackberry

The manner in which two of the Gulf Coast's newest fields have jumped to the front in the number of drilling operations is of primary interest in coastal developments. These are at Raccoon Bend, Austin County, Texas, and at Hackberry, Cameron Parish, Louisiana. At the former, 10 rigs Saturday were actually making hole while rigs were up for 5 other tests. At Hackberry, 16 rigs were running while 3 other tests were rigged up and locations were made for three others.

Raccoon Bend, which is controlled by the Humble Oil & Refining Co. and the Valley Oil Corp., is being held in to the minimum but at Hackberry, where on the south flank of the old dome production was opened only this year, acreage is badly cut up and a dozen or more companies are being forced into a competitive drilling campaign.

On the south flank of the Hackberry Dome, Cameron Oil Co. and Rycade Oil Corp.'s No. 3 Duhon is drilling sandy shale at 3,111 feet. Cherokee Oil Co.'s No. 1 Duhon is in gumbo at 2,629 feet. Coastal Oil Co.'s No. 1 Duhon is coring sand at 2,760 feet. Federal Petroleum Co.'s No. 1 Kaough is drilling gumbo and lime at 2,800 feet. No. 2 Kaough is drilling sand at 3,068 feet. No. 3 Kaough is drilling gumbo and lime at 2,859 feet, and No. 1 Duhon is drilling gravel at 975 feet. The latter company's No. 4 Kaough and No. 2 Duhon are rigging up. Moon Oil Co.'s No. 2 Sanner is drilling sand rock at 2,923 feet. Rex Petroleum Co.'s No. 1 Vincent is drilling gumbo at 375 feet. Sun Oil Co.'s No. 1 Vincent is drilling sand at 2,714 feet. This company's No. 2 Vincent is in gumbo at 325 feet. Yount Lee Oil Co.'s No. 2 Vincent and No. 1 Kaough have spudded in. Pure Oil Co. entered the field during the week with two locations on its Duhon tract.

On the southwest side of the dome, Rycade Oil Corp. and Humble Oil & Refining Co.'s No. 1 Gulf Land is drilling gumbo at 2,753 feet. These companies also are rigging up for a joint No. 2 Gulf Land.

New Hackberry Dome

On the newer Hackberry Dome, discovered geophysically, a few miles to the east, Calcasieu Oil Co.'s No. 13 Watkins was abandoned the latter part of the week in heaving shale just below 4,066 feet. The latter's No. 5 Dorion, which drilled into salt to 3,665 feet, is sidetracking around 2,400 feet. Calcasieu company also has made location for No. 6 Valery, 260 feet east of No. 5. The Texas Company's No. 4-B Calcasieu Lake on the extreme east side in the lake, has started drilling and at latest report was in surface formation below 100 feet.

Drilling operations at Raccoon Bend, where work as well as production has been extended out over several miles, include Humble and Valley's No. 3 Urban, drilling hard shale and lime at 2,395 feet; No. 1-D Grawunder, drilling sticky shale at 605 feet; No. 1 J. W. Wilson, shale at 2,644 feet; No. 3 E. B. Wilson, reaming the hole to 9⅞ inches to the bottom at 1,005 feet; No. 2 Dietrich, gumbo at 1,696 feet; No. 1 Sherrill, shale and lime at 2,569 feet; No. 3 Roy Thompson, shale at 963 feet; No. 2 Kearns, sandy shale at 2,726 feet; No. 2 Saunders, sand rock at 166 feet, and No. 3 Hardy, gumbo at 160 feet.

Rigs are up for No. 2-A Washington, No. 1 Muller, No. 1 Buchanan, No. 1 Williams and No. 1 Wilson heirs and locations have been made for additional tests.

The middle of the week the shallow gas production was extended over 3,000 feet west by the completion of No. 1 Ueckert making 5,000,000 feet of gas daily at 1,001 feet. This well also is 1½ miles west of the nearest oil production. Results of No. 1-C Grawunder have been somewhat disappointing and the well now is being rigged up to pump with the bottom of the hole at 3,381 feet.

Pierce Junction—Harris County

Entrance of the Pure Oil Co. into operations at Pierce Junction was one of the late developments of the week at that field. Although this company some time ago was interested jointly with the Humphreys Corp. in a well on the northwest flank of the dome, this latest operation, which is on the southwest flank might be considered the company's first test. In making location for its No. 1 Herman estate, Pure Oil Co. is offsetting to the north the well, No. 4-B Settegast, completed the past week by the Moody Corp. (Superior), which came in flowing an estimated 1,200 bbls. daily from sand at a total depth of 4,663 feet. The latter was a wildcat, being the first production anywhere on the south part of the dome. The Pure company's test is 290 feet west and 25 feet north of the southeast line of the 25-acre tract. The Moody well, however, has dropped off until Saturday it was making an estimated 500 bbls. daily.

The east flank of the dome almost created a sensation last Tuesday when Gulf Production Co.'s No. 2 Fitzsimmons-Hamman blew out and flowed at an estimated rate of between 5,000 and 6,000 bbls. of oil daily with a high gas pressure from sand at 4,522 feet. The well quickly sanded and late in the week was

(Continued on Page 123)

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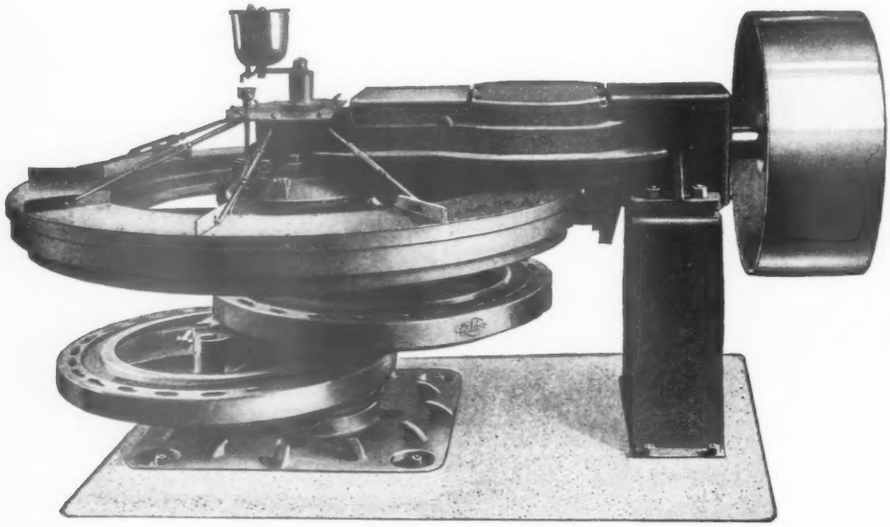

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GAS ENGINES—OIL ENGINES—PUMPING POWERS
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O'Connell Zone May Be Expansive

Potentiality Unknown Until Another Completion. Several Shale Breaks; Possible Intermediate Water Sand

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif. Mar. 9.—Although no further completions have been chalked up in the recently discovered deep O'Connell zone at Santa Fe Springs, several drilling wells tend to confirm the existence of a rather expansive zone so far as areal extent is concerned. Core samples extracted from drilling projects in various parts of the field show a rather uniform condition, although some question still exists as to whether this zone contains an intermediate water, as George F. Getty's No. 19, the initial well finished in the O'Connell zone, came in cutting approximately 50 per cent water upon completion a few weeks ago. This well, which was bottomed at 6,610 feet and finished with a 4¾-inch oil string cemented through perforations at 6,360 feet, is flowing 1,675 bbls. per day, cutting 48 per cent. The source of this water has not been definitely determined and the potentiality of the new O'Connell zone will consequently not be known until another producer has been completed. Some attach considerable significance to the fact that core samples indicate several shale breaks in the O'Connell zone with a possible intermediate water sand but the O'Connell sand will probably yield clean oil upon development although it may require careful subsurface engineering in the first several wells.

The Universal Consolidated cored the top of the new O'Connell zone in No. 7 Blanchard a few days ago at 6,302 feet and the first 100 feet of sand showed favorable texture and excellent saturation. This is slightly higher than the depth at which this zone was encountered in Getty's No. 19. Both wells are favorably located on the apex of the structure, situated in proven territory and assured of production. In the extreme eastern part of the field the Plymouth Petroleum Co.'s No. 1 Roberts is still in the oil sand at 7,000 feet and the outlook is favorable for commercial production. The top of the O'Connell zone was picked up at 6,812 feet. In the western part of the field, the Associated Oil Co. has picked up an entirely new zone in its No. 2 Clarke at 7,799 feet. Cores from 7,799 to 7,900 feet, the present bottom, show a hard medium grained oil sand streaked at infrequent intervals with shale. This is the second zone encountered in No. 2 Clarke, 51 feet of oil sand having been cored between 7,321-72 feet.

The probability of developing large substantial production below the Buckbee horizon at Santa Fe Springs has not yet been definitely determined, although every indication points to the development of clean oil in large quantities. Several wells around the edge of the field have cored oil sands at various depths running from 50 to 100 feet in thickness. It is logical to assume the presence of these sands on the edge of the structure reflect the existence of thick saturated zones on the apex where deep-zone development has been rather slow due to the hesitancy of operators in killing satisfactory commercial producers to explore in search of a sand where potentiality is still undetermined. Several wells on top of the structure are already headed down in search of the O'Connell zone or other unnamed productive horizons and additional early tests can be anticipated. Production curves of Santa Fe Springs have been dropping for the past few weeks and the output will continue to decline from week to week until exploitation extends to deeper and more prolific horizons.

The Pacific Gas & Electric Co. is making good progress on the natural gas line which it is laying from the Buttonwillow gas field of Kern County northward to the Oakland and San Francisco Bay region and this project will be in operation before 1929 draws to a close. Consequently, work has already been under way for the past several weeks and application was made last week for the final franchise necessary to give this line a complete right of way for a distance of approximately 275 miles. The Milham Exploration Co. successfully completed its seventh gas well in the Buttonwillow gas field of Kern County during the past week when No. 8-A Buttonwillow was brought in flowing 7,800,000 feet of dry natural gas per day from a depth of 2,673 feet. The natural gas line of the Pacific Gas & Electric Co. will be routed via the recently discovered Kettleman Hills Field of Kings County where all indications point to the development of a substantial production of both oil and gas. The Milham Exploration Co. discovered both fields and will reflect future development because of its holdings.

Kettleman Hills

Drilling operations are progressing satisfactorily in the Kettleman Hills Field of Kings County where the Milham's discovery well is still flowing 4,000 bbls. of 60 gravity crude and 36,000,000 feet of natural gas per day more than five months after completion and while it will probably be several months before any of the present drilling projects are completed, the General Petroleum may soon succeed in testing out No. 2 Oschner, which has been drilling for more than a year. Several new projects have been spudded in at Kettleman Hills recently and eight more wells are expected to be making hole in the north dome before the close of another 30 days. The lack of roads through this hilly country and a shortage of water have been delaying matters, but these obstacles are slowly being overcome. The Petroleum Securities, which is working on two wells in the north dome, will also devote its attention to the middle dome of the Kettleman Hills anticline during the next several months as preparations are already under way to drill a deep test on the Burbank lease, a 1,400-acre tract which was quitclaimed by the General Petroleum some time previous to completion of the Milham's discovery well in the north dome. The General Petroleum turned loose of the Burbank property at a time when conditions were not considered any too bright for commercial production in this area. The company drilled one well previous to relinquishing this acreage but only succeeded in developing shallow production of heavy unrefinable crude. The lease obligations were exceptionally stringent and the company was forced to quitclaim its holdings or engage in an unwarranted extensive drilling campaign with no market available for heavy oil.

Lawndale

After several weeks of anxiety due to the failure of several wells to pick up the Smith zone at Lawndale, the Standard gave the boys a little encouragement by coring a rather favorable looking oil sand in its No. 1 Vance. This well, which has cored several alternating shale and thin oil sand bodies, topped its first promising sand at 6,078 feet and present indications favor the development of commercial production. This is the first of several wells in the town lot area to pick up a well-defined oil zone, notwithstanding they are considerably deeper than the discovery well and the pessimism which has prevailed in this field during the past several weeks has consequently been tempered with a little optimism. Lawndale presents one of the most complex geological puzzles operators have had to solve for a long time and it will probably be several months more before the extent of this structure has been definitely ascertained. The fact that several wells in the intensely subdivided town lot area are from 200 to 300 feet deeper than the discovery well has led to the assumption that the axis of the Lawndale structure may be west of the initial completion instead of east, as many anticipated. The limited amount of data available and the utter lack of uniformity in

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Standard, No. 5-9 Saticoy, Ventura Co.	10- 2-22	4,806	gr. sd. drilling
Calif. Western Oil Co., No. 1 Elkins, Ventura Co.	28- 4-19	2,951	suspended
Exline, Emma, No. 1 Saticoy, Ventura Co.	33- 3-21	2,412	suspended
American Oil Co., No. 1 Camarillo, Ventura Co.	33- 2-20	868	hd. sd. drilling
Star Pet. Co., No. 2 Canet, Ventura Co.	13- 3-23	6,775	suspended
Bolsa Chica, No. 1 Temescal, Ventura Co.	4- 4-18	708	br. sh. drilling
The Texas Company, No. 1 Hueneme, Ventura Co.	Lot 82	425	sd. drilling
The Texas Company, No. 1 Wiley Canyon, Ventura Co.	2- 3-19	Rig	rigging up
Miley, E. J., No. 2 Casitas, Ventura Co.	12- 3-21	874	rd. sd. drilling
Shell, No. 1 Marr, Simi, Ventura Co.	31- 3-17	2,150	hd. sd. drilling
Continental, No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	3,754	reaming
Continental, No. 2 Sulphur Mountain, Ventura Co.	22- 4-22	5,700	br. sh. drilling
Milham Expltn., No. 1-A Buttonwillow, Kern Co.	8-28-23	4,662	gas well
Milham Expltn., No. 2 Buttonwillow, Kern Co.	8-28-23	2,730	gas well
Milham Expltn., No. 3 Buttonwillow, Kern Co.	8-28-23	2,694	gas well
Milham Expltn., No. 4 Buttonwillow, Kern Co.	6-28-23	2,670	gas well
Milham Expltn., No. 5 Buttonwillow, Kern Co.	5-28-23	2,500	gas well
Milham Expltn., No. 6 Buttonwillow, Kern Co.	8-28-23	2,676	gas well
Milham Expltn., No. 7 Buttonwillow, Kern Co.	6-28-23	2,720	suspended
Milham Expltn., No. 8-A Buttonwillow, Kern Co.	8-28-23	2,673	gas well
Doheny-Stone, No. 1 Salisbury, Kern Co.	7-29-24	4,750	cemented
South. Calif. Gas Co., No. 1 Buttonwillow, Kern Co.	4-28-23	4,272	suspended
South. Calif. Gas Co., No. 2 Buttonwillow, Kern Co.	27-28-23	Rig	suspended
Lincoln Drlg. Co., No. 1 Buttonwillow, Kern Co.	6-28-23	190	suspended
Richfield Oil Co., No. 1 Semitropic, Kern Co.	21-26-22	5,207	cleaning out
Richfield Oil Co., No. 2 Semitropic, Kern Co.	36-27-23	2,318	hd. sd. drilling
Pacific Eastern, No. 1 Union Ave., Kern Co.	6-30-28	5,640	suspended
Pacific Eastern, No. 2 Union Ave., Kern Co.	6-30-28	4,500	suspended
Pacific Eastern, No. 3 Union Ave., Kern Co.	6-30-28	4,443	gas, shut in
Pacific Eastern, No. 5 Union Ave., Kern Co.	5-30-28	4,991	suspended
Stabler, W. W., No. 1 Comanche Point, Kern Co.	23-32-29	3,409	suspended
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	1,230	change equip.
Midway Northern, No. 1 Edison, Kern Co.	29-29-30	3,841	suspended
Elmer Oil Co., No. 1 Shafter, Kern Co.	8-28-25	6,100	gr. sd. drilling
Elmer Oil Co., No. 1 Edna, Kern Co.	15-30-30	....	location
Union, No. 2 San Emidio, Kern Co.	5-10-21	785	sd. sh. drilling
Currency Pet. Co., No. 1 Vineyard, Fresno Co.	28-21-14	1,324	gr. sh. drilling
Hornaday & Huggins, No. 1 Kerman, Fresno Co.	32-14-18	1,020	sd. sh. drilling
K. C. L. Oil Co., No. 1 Joaquin Ridge, Fresno Co.	7-19-15	Rig	rigging up
Thomas Pet. Co., No. 1 Krayenhagen, Fresno Co.	33-22-17	477	br. sh. drilling
Union, No. 1 Huasna, San Luis Obispo Co.	34-32-15	3,232	redrilling
Union, No. 1 North Huasna, San Luis Obispo Co.	12-32-14	2,968	cleaning out
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	3,600	pipe bad
Dollar Oil Co., No. 1 Vishnu, San Luis Obispo Co.	18-32-22	1,788	cleaning out
Sequoia Oil Co., Well No. 2, San Mateo Co.	15- 7- 5	1,605	suspended
Sunset Pacific, No. 1 Saratoga, San Mateo Co.	13- 7- 4	Rig	suspended
Calhoma Oil Co., No. 1 Livermore, Alameda Co.	9- 3- 3	1,544	cleaning out
Foster & Hammill, Well No. 1, Alameda Co.	21- 3- 3	465	suspended
R. Y. Hanlyn, Well No. 1, Alameda Co.	3- 5- 2	360	suspended
Shell, No. 1 Guadalupe, Santa Barbara Co.	36-10-35	2,488	hd. sd. drilling
Shell, No. 2 Goleta, Santa Barbara Co.	36- 5-31	2,206	sd. sh. drilling
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	780	sd. sh. drilling
Standard, No. 1 Tortuga Canyon, Santa Barbara Co.	....	1,570	sd. sh. drilling
Standard, No. 1 Point Arguello, Santa Barbara Co.	X- 7-35	....	location
Olympic O. & R. Co., No. 1 Mesa, Santa Barbara Co.	X- 7-28	Rig	rigging up
Bankline Oil Co., No. 1 Mesa, Santa Barbara Co.	X- 4-27	3,208	br. sd. drilling
Exeter Oil Co., No. 1 Mesa, Santa Barbara Co.	X- 4-27	425	sd. drilling
Sextette Oil Co., No. 1 Goleta, Santa Barbara Co.	10- 4-28	101	sd. drilling
Padre Oil Co., No. 1 Dos Pueblos, Santa Barbara Co.	8- 4-29	Rig	rigging up
System Oil Co., No. 1 Orcutt, Santa Barbara Co.	36-10-34	Rig	rigging up
Pet. Securities, No. 1 Santa Ynez, Santa Barbara Co.	....	....	location
Tepesquit Oil Co., Well No. 1, Santa Barbara Co.	3- 9-32	2,710	suspended
Becker, George F., No. 1 Summerland, Santa Barbara Co.	33- 4-25	3,090	suspended
Channel Oil Co., Well No. 1, Santa Barbara Co.	29- 4-27	6,304	suspended
Channel Oil Co., No. 1 Fellowship, Santa Barbara Co.	29- 4-27	Rig	rigging up
Continental, No. 1 Carpenteria, Santa Barbara Co.	33- 4-25	3,990	oil sand
Elwood Consd., No. 1 Goleta, Santa Barbara Co.	8- 4-29	3,310	cemented
Colusa Oil Co., Well No. 1, Colusa Co.	31-15- 4	380	redrilling
Nuna Oil Co., Well No. 1, Colusa Co.	19-15- 5	400	suspended
Superior Oil Co., No. 1 Calivada, Colusa Co.	31-15- 4	1,011	suspended
North Counties Oil Co., Well No. 2, Humboldt Co.	36- 2- 1	2,205	suspended
Humboldt Oil Co., Well No. 1, Humboldt Co.	6- 2- 1	3,041	redrilling
Applegate & Renshaw, Well No. 1, Merced Co.	24- 6-10	2,350	bl. sh. drilling
Angiola Oil Co., No. 1 Angiola, Tulare Co.	27-22-23	5,021	hd. sd. drilling
Shell, No. 1 Dudley, Monterey Co.	15-22- 9	1,007	hd. sd. drilling
Brown Oil Co., No. 1 Parkfield, Monterey Co.	....	....	grading
Dudley Ridge Synd., No. 1 Tulare, Kings Co.	12-23-19	1,148	sd. sh. drilling

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Ring Pet. Co., No. 1 Inglewood, Los Angeles Co.	28- 2-14	4,704	hd. sd. drilling
Petroleum Securities, No. 1 Hermosa, Los Angeles Co.	32- 3-14	3,874	tar showing
West. Drlg. & Prod. Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	3,516	sd. sh. drilling
Mont. Park Oil Co., No. 1 Browning, Monterey Park	26- 1-12	4,420	suspended
Mont. Park Pet. Co., No. 1 Jepson, Monterey Park	25- 1-12	3,937	suspended
Rio Grande, No. 1 Downey, Los Angeles Co.	34- 2-12	4,502	hd. sd. drilling
Jackson, R. W., No. 1 Whittier, Los Angeles Co.	19- 2-11	285	hd. sd. drilling
Burlingham Pet. Co., No. 1 Compton, Los Angeles Co.	17- 3-13	494	suspended
Richfield, No. 1 Maywood, Los Angeles Co.	13- 2-13	5,100	sd. sh. drilling
Easton & Smith, No. 1 Calabasas, Los Angeles Co.	19- 1-17	2,982	suspended
Russell Oil Co., No. 2 Joughin, Los Angeles Co.	25- 3-17	1,550	hd. sd. drilling
Pomona Oil Co., Well No. 1, Los Angeles Co.	32- 1- 8	1,090	fishing
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	suspended
Richfield Oil Co., No. 1 Puente, Los Angeles Co.	9- 2-10	3,434	water trouble
Union Oil Co., No. 1 Richfield, Los Angeles Co.	13- 3- 9	....	location
Southwestern Dev. Co., No. 1 Richfield, Los Angeles Co.	21- 3- 9	1,188	sd. sh. drilling
Calif. Eastern, No. 1 Wickham, Los Angeles Co.	32- 5-17	3,098	plug. back
Coastline Oil Co., No. 1 Devil Canyon, Los Angeles Co.	21- 5-17	121	suspended
The Texas Company, No. 1 Anaheim, Orange Co.	35- 4-10	4,277	hd. sd. drilling
Bastanchury Ranch Co., Well No. 1, Orange Co.	21- 3-10	Rig	suspended
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	3,799	br. sh. drilling
West. Drlg. & Prod. Co., No. 1 Newport, Orange Co.	18- 6-10	4,461	suspended
West. Drlg. & Prod. Co., No. 2 Newport, Orange Co.	18- 6-10	Rig	rigging up
Hall Pet. Co., No. 1 Murrietta, Riverside Co.	22- 7- 3	975	fishing
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,232	set pipe
Davenport O. & G. Co., No. 1 San Marcos, San Diego Co.	30-12- 8	847	suspended
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12- 2	1,685	suspended

subsurface conditions as indicated by "foram" work precludes anything more than a mere supposition at present.

A check of drilling operations in the Lawndale Field shows 62 strings of tools in operation with six wells making hole below the 6,000-foot level, 22 between 5,000 and 6,000 feet and 34 under way above the 5,000-foot level. These wells extend northwest and southeast in practically an unbroken line for a distance of approximately 3 miles. The greatest concentration is in the town lot area immediately east of the discovery well. In addition to those wells located along the trend of the projected axis of the Lawndale Field, there are quite a number of additional projects drilling off the generally accepted Lawndale structure in areas somewhat removed from present development. The entire area north of the Torrance Field and west of the Newport-Beverly fault zone is undergoing intensive exploration and this work may result in the discovery of another new field. One of these wells, in the Redondo Villa tract southwest of the discovery well at Lawndale, cored a series of tar showings between 3,575 feet and 3,700 feet and, while this did not warrant a production test, the showings are very encouraging.

Elwood

The Barnsdall Oil Co. boosted the daily production of the Elwood Field of Santa Barbara County up to approximately 25,000 bbls. a day during the latter part of the week by completing No. 3 Doty flowing 4,000 bbls. per day. This new well, the most easterly producer in the Elwood Field at present, was carried down to 3,676 feet and finished with an 8¾-inch oil string. No. 6 Bell Luten, the most westerly project of the Barnsdall and Rio Grande at Elwood, will probably be finished some time within 15 days, as the 11¾-inch water string has already been landed and cemented at 3,195 feet and preparations are being made to drill ahead. No. 1 Elwood Acres, in the extreme eastern part of the field, about 5,000 feet from production, is rotating in a gray sandy shale of the Sespe formation at 4,815 feet. This outpost failed to secure commercial production in the overlying Vaqueros formation as only a small amount of oil sand was encountered, but it tends to indicate that the Bell Luten sand might be anticipated in wells one or two locations to the west. Construction work was started a few days ago on an additional unit of the natural gasoline plant of the Barnsdall and Rio Grande at Elwood and this new unit will double the present capacity of this absorption plant which is producing up to its rated capacity of 30,000 gallons daily. The original plant cost approximately $225,000 with the new unit to run somewhere in the neighborhood of $150,000.

Santa Fe Springs

The deep Buckbee zone and intermediate Nordstrum horizon yielded several new completions during the week but the aggregate initial daily production was insufficient to offset the normal decline in producing wells and field production showed a further drop. The General Petroleum started off the week with an excellent completion when No. 146-A Santa Fe was brought in under a natural flow doing 5,350 bbls. of clean 33.1 gravity oil daily from 5,925 feet, the hole having been plugged back from 6,038 feet because of a threatening looking gray sand. This well was followed into production by George F. Getty's No. 13 Nordstrum, recompleted in the Nordstrum zone after being redrilled and deepened to 5,440 feet, from which depth it came in under a natural flow making 1,550 bbls. of 35.2 gravity oil daily. The Standard Oil Co. also listed a recompletion when No. 19 South Whittier Community was returned to production flowing 2,060 bbls. of clean 35.3 gravity oil daily from the Buckbee zone at 5,718 feet. No. 5 Baker of the Wilshire was also finished in the Buckbee zone and tanked 1,460 bbls. of clean 35.1 gravity oil daily from 5,899 feet. The Union put No. 10 Howard on a production test at 5,775 feet but this potential Buckbee zone producer failed to result in commercial production due to an excessive water cut and was killed and

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	110,550	1,348,969
Diesel and gas oil	.....	.....	.....	.....	389,566	449,739
Gasoline	313,867	44,838	153,507	21,930	3,681,954	2,041,328
Naphtha distillate	81,750	11,679	.....	.....	81,750	.....
Coastwise—						
Crude oil	383,678	54,811	378,903	54,129	5,307,322	3,303,630
Fuel oil	678,226	96,889	340,126	48,589	4,179,056	3,587,060
Diesel and gas oil	66,486	9,498	27,433	3,919	191,878	225,595
Gasoline	132,312	18,902	250,305	35,758	2,182,806	2,414,704
Kerosene	975	139	505	72	3,313	22,865
Naphtha distillate	.....	.....	.....	.....	.....	124,992
Exports—						
Crude oil	245,027	35,004	161,250	23,036	928,913	461,933
Fuel oil	421,541	60,220	161,943	23,135	3,519,703	5,221,585
Diesel and gas oil	115,586	16,512	.....	.....	512,999	577,384
Gasoline	68,765	9,823	191,010	27,287	1,714,344	926,523
Kerosene	71,575	10,225	80,376	11,482	549,551	822,572

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	342,425
Gasoline	75,514	10,788	.....	.....	576,684	330,343
Coastwise—						
Fuel oil	.....	.....	70,160	10,023	624,580	815,522
Diesel and gas oil	79,758	11,394	.....	.....	107,747	78,495
Gasoline	46,484	6,641	120,680	17,240	652,576	749,735
Kerosene	7,791	1,113	.....	.....	19,529	68,321
Exports—						
Crude oil	.....	.....	.....	.....	71,453	45,102
Fuel oil	.....	.....	45,271	6,467	96,351	448,256
Diesel and gas oil	.....	.....	.....	.....	62,815	10,400
Gasoline	187,657	26,808	4,165	595	924,763	1,021,879
Kerosene	.....	.....	1,428	204	69,458	141,420
Lubricants	.....	.....	.....	.....	13,693	.....

will be carried down into the recently discovered O'Connell horizon.

Ventura Avenue

Drilling operations in the Ventura Avenue Field have shown a consistent increase during several months but this additional work has not been reflected in the completion of new wells as the drilling time from spud to completion in this district averages six months. Ventura Avenue is undoubtedly the most difficult field in California to drill at present due to extreme gas pressure, unusually hard geological formations and the necessity of utilizing extra heavy drilling equipment. A check of development work indicates the probable completion of 25 new wells within 90 days. The Shell finished No. 31 Taylor doing 1,210 bbls. daily from 6,585 feet and this will be the forerunner of several more wells scheduled for early completion. One of the most interesting is No. 1 Hartman of the Petroleum Securities Co. The importance which attaches to this project lies in its location with respect to structure as it is situated several hundred feet beyond production in the northern part of the field. No. 1 Hartman of the Petroleum Securities is located on a 174-acre lease which was originally drilled two years ago by G. J. Magenheimer, who abandoned his No. 1 Hartman at 3,737 feet because of mechanical trouble and subsequently abandoned his second test, No. 1-A Hartman at 7,300 feet. The north flank of the Ventura Avenue Field dips off much faster than the south flank but the Petroleum Securities may be successful in developing deep production. The Shell is also attempting to extend the outer limits of production at Ventura Avenue, having recently spudded in No. 1 Taylor-Lloyd, an outpost in the bed of the Ventura River north of the Edison and Taylor leases.

Midway-Sunset

Exploration work in the Midway-Sunset Field of Kern County has shown a very pronounced increase due to a series of showings logged in a number of wells. Several dry holes have already been drilled during the past few months in an effort to secure production predicated on showings logged in the Union Oil Co.'s No. 1 Western Petroleum and some of the new drilling projects getting under way as a result of the shallow sand found in Thomas Purman's outpost in Section 12-32-22 may also be dry. Early work has indicated a lenticular condition peculiar to this field and recent drilling has tended to confirm this characteristic. The Lakeview gusher, which blew in doing 70,000 bbls. per day in 1910, is perhaps the best illustration of the unconformity in this area. Other wells drilled within a few hundred feet of this phenomenal producer failed to encounter any evidence of substantial production.

The Obispo Oil Co.'s No. 6 in Section 32-12-23 was another evidence of lenticular conditions which failed to show up in adjacent wells. No. 6 blew in under a natural flow doing 5,000 bbls. per day a little over two years ago. This brown shale production is very treacherous and many of the drilling projects now under way at Midway-Sunset will never secure production. The deep zone found a little over a year ago by the Republic Petroleum was also rather limited in scope, although this zone extended across two sections, and embraced about 500 acres. The Republic Petroleum completed a new well in this area during the past week, No. 33 in Section 8-32-23, showing an initial flow of 1,650 bbls. daily before sanding up. The output from this new well, which was completed at an even 3,000 feet, was cutting about 20 per cent previous to the cessation of flow and may require another cement job. The Chanslor-Canfield Midway Oil Co. is making preparations to complete No. 5 in Section 7-32-23 and is scheduled to spud in Nos. 6 and 7 soon.

The Republic Petroleum will be obliged to offset these wells to prevent undue drainage and several strings of tools will probably be in operation soon. George F. Getty staked location for a new well west of Fellows in the Temblor Range. Getty's outpost on the Phelps property in Section 29-31-22 will undoubtedly be watched with interest because of the broadening scope of wildcat activities in this section of the Midway-Sunset Field. The Western Producing Co. has made a technical spud in a new well in Section 31-21-32 but will probably await the outcome of other work.

LARGEST TRAVERSE WELL COMPLETED IN LAKETON TOWNSHIP, MICHIGAN

By Special Correspondent

MUSKEGON, Mich., Mar. 9—A week of renewed activity in the Muskegon Field resulted in seven completions, including two gassers and an oil well in the Dundee formation, three oil producers in the upper Traverse and only one dry hole in the Dundee.

The largest completion was Mitchell and Mesiroff's No. 1 C. J. Christopherson and William LeBoeuf, NE SE Section 12-10-17, Laketon Township, which was rated at 1,500 bbls. as an initial producer in the upper Traverse pay sands at 1,644 feet. This is the largest Traverse well completed in Laketon Township and one of the largest ever completed in the upper pay in the field. Oil was unexpected in the upper pay and the well flowed several thousand barrels of oil upon the Bear Lake flats before it could be cased and turned into the field tanks and Dixie Oil Co. lines.

Traverse production, which the Standard of Indiana is still accepting at Mid-Continent prices, was more than doubled, from about 1,000 to more than 2,000 bbls. a day, by the new producer.

There were two other Traverse oil wells completed in the Laketon Township area, Johnson Oil Refining Co.'s No. 1 Charles Cihak, NE NE Section 12-10-17, made 380 bbls. during the first 24 hours from 1,693-1,703 feet. It continues to make 350 bbls.

Carl P. Damm's No. 1 fee, NE SW Section 12-10-17, was completed as a 25-bbls. initial producer at 1,900 feet in the lower Traverse. Holland-Weideman Association's No. 1 Charles Comley, NE NE Section 14-10-17, made a 60-bbl. flow when brought in at 2,055-58 feet and will make about 100 bbls. as an initial producer on the pump. It is on the opposite side of the road from the Betty-Jane Syndicate's No. 1 Brand, which made 750 bbls. initial in the Dundee at 2,058-61 feet. The latter has a higher surface elevation.

Both of the two completions in Muskegon Township were dry gassers in the Dundee. Muskegon Development Co.'s No. 1 Toppen, SW NE Section 9-10-16, came in with a flow of 1,000,000 feet and stopped drilling at 2,016 feet in the Dundee. Johnson Oil Refining Co.'s No. 3 Ludwig Heinz, in the same quarter section but one 20-acre lease nearer the heart of the field, made 4,000,000 feet initial. It was drilled to 2,002 feet and completed.

The only dry hole was V. M. Voorhees and others' No. 1 Varnes, SW SW Section 15-10-17, Laketon Township; bottom salt water was struck at 2,063 feet.

Four wells were cased and about ready to drill into the Dundee formation in Muskegon Township: Brown and Cornelius' No. 1 Host, SE SE Section 5-10-16; Duchess Oil Co.'s No. 1 Kieft, NW NW Section 7-10-16; Wright Oil Co.'s No. 3 Giles, and C. W. Marsh and others' No. 1 Hallock, NW NW Section 7-10-16.

Laketon Township

One well was drilling into the Dundee in Laketon Township while three others have been cased and mudded or cemented above the same pay sands ready to be drilled in.

Dixie Oil Co.'s No. 1 J. D. Ross, NE SW Section 12-10-17, is drilling at 1,150 feet, with a hole full of oil and making some oil.

Nine permits to drill on five different tracts in the Muskegon and Laketon Township areas have been issued to the Reed Oil Co. Each of the permits give 5,000 feet as the intended depth of the wells and provide for the use of 10 or 14-inch drive pipe. None are to be started at this time. Four are for additional wells on the 40-acre H. Young lease, SE NE Section 11-10-17, Laketon Township, Nos. 6, 7, 8 and 9 providing for drilling in each corner of the lease and in the middle of each side of the 40 acres if desired. Two additional wells, Nos. 3 and 4 Hill, SE NE SE Section 8-10-16, also may be drilled. The company now has one producing well in the upper Traverse

(Continued on Page 129)

EXPLOITATION IN SUMATRA

The Koloniale Petroleum Co. has recently requested concessions for the exploitation of oil lands in the Celebes and in regions adjoining its present fields in Sumatra, of a total area of 400,000 hectares. The request has been approved by the colonial minister and forwarded to the East Indian government; previous experience indicates that two or three years will be needed to complete negotiations. It is understood that a concession of similar size is being granted to the Royal Dutch-Shell. Several promising wells have been brought in on the Koloniale's Sumatra concession and production is increasing so rapidly it has been necessary to enlarge the refinery. The plan to erect a storage plant on the island in the Banka Straits has been abandoned because of difficult currents around the island, and it has now been proposed to buy a small island near Singapore and develop it into a large storage base.

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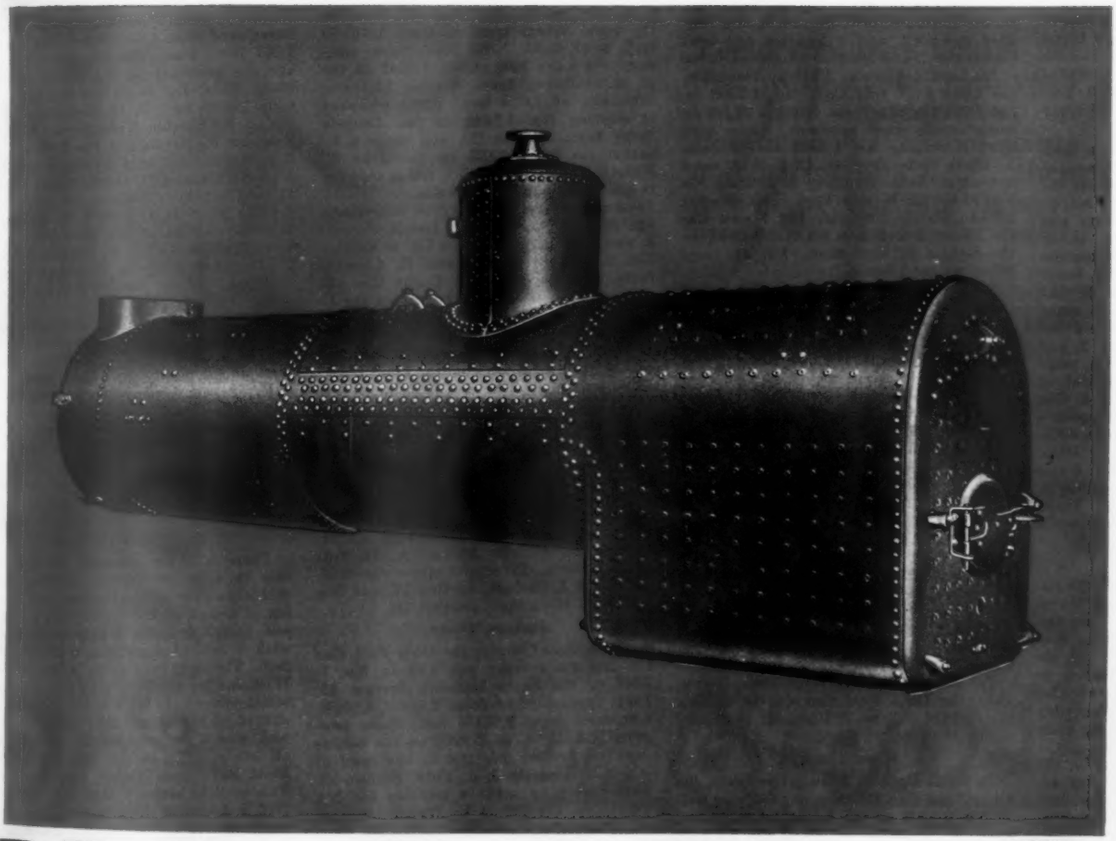

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IN ALL OIL FIELDS

Surprise In Southern Indiana Well

Followed by Rush of Scouts Across Ohio River Into Spencer County. May Be First Pool of Importance in That Area

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Mar. 11.—Only seven completions are reported in the old Central West Field, outside of Central Ohio, which maintains its activity, mostly in developing new gas-producing areas. The total completions in the four divisions numbered 31 wells, 11 dry holes, 13 gas wells, and an initial production of only 114 bbls., which indicates only small oil producers.

Very little is being done in the way of drilling or new rigs at this time in the Lima Field of northwestern Ohio on account of high water in the streams passing through the old Trenton Rock area. The Blanchard River at Findlay, the Maumee, Portage, Ottawa and other rivers are out of bounds, and thousands of dollars damage have been done throughout the field. What the spring will bring in field work remains to be seen, although much leasing has been done on all sides of production as well as on many of the old producing farms that have been abandoned for years. Large producers are a thing of the past within the old limits of the Trenton, and if big wells are found it will be only on the outer edges like the pool found a year or so ago north of Tiffin, in Seneca County. Small producers can be found most anywhere along the edges of the old field.

Two nice wells are reported from Bath Township, Allen County, northeast of Lima, as Neely & Nolden's No. 3 on the Phil Basset, Section 13, pumped an initial of 30 bbls., and H. F. Kelley and others' second test in the NW cor. of the Minnie M. Snider, in the SE of Section 14, pumped 25 bbls. the first 24 hours at a total depth of 1,385 feet, or 37 feet in the sand. In Marion Township, same county, Mack P. Colt has abandoned No. 2 on the J. A. Good farm, Section 2, and No. 3 on the Charles Bilemek farm, same section. Mr. Colt, who is a resident of Lima and head of the Oko Oil & Gas Co., is now doing most of the company's work in Kansas, but may do some drilling during the coming summer in Ohio.

The Ohio Oil Co. abandoned Nos. 6 and 7 on the J. J. Grubbs farm, Section 3, Logan Township, Auglaize County. These are numbered among the old-time wells of that once productive county.

Mercer County

In Mercer County, Hopewell Township, the June Oil Co. abandoned No. 1 Perry C. Miller farm, also No. 1 on the Edward F. Hellworth farm, both in Section 28. J. H. Wilson has pulled out his old No. 1 on the Henry Lechner farm in Gibson County. The Ohio Oil Co. also abandoned No. 6 on the E. Snaveley farm, Section 3, Center Township, same county.

Reports from the eastern portion of the old Lima Field are that a number of additional tests for both oil and gas will be made during the summer on Catawba Island and probably a test drilled on Middle Bass Island in Lake Erie, where some oil was found 20 years ago. Territory around Elmore, also in Ottawa County, will get its part of new development, as a company was recently organized there to drill for gas. There is still much untested territory in the eastern part of Wood County, also in various parts of the northwestern portion of Ottawa County. The northeastern part of Hardin County and western portion of Wyandot County have been pretty well leased up of late, especially for gas in the vicinity of Forest, where until recently the gas could not be utilized for heat on account of the great amount of sulphur, but this was remedied when the Ohio Fuel Gas Co. constructed a plant that removes the sulphur. The producing gas wells in this field are found in what is known as the "Lost Dome," the largest dome known in Ohio.

CENTRAL OHIO

Twenty-two completions were reported from the Central Ohio fields, of which 3 were oil wells with an initial production of 47 bbls., 6 dry holes and 13 gas wells. In new work under way, locations were staked for 9 wells and 31 wells started drilling, a total of 40 in new development.

In Ashland County, Orange Township, the Kemrow Co.'s No. 3 Emma Miller farm, Section 11, is an average gas producer. The Logan Gas Co. has started to drill at No. 1-3077 on the W. W. Barnhill, Section 26. In Perry Township, Fawn Daw and others' No. 5 O. K. Brown farm, Section 23, was a dry hole in the shallow sand at from 539 to 543 feet. Ohio Fuel Gas Co. is drilling No. 1-3444 on the Bertha M. Peters farm, Section 26, Green Township.

In Medina County, Lafayette Township, the Logan Gas Co.'s No. 1-3050 on the A. J. House farm, Section 6, is a very good gas well, and a location has been staked for No. 2-3063 on the same farm.

In Lorain County, Carlyle Township, the Ohio Fuel Gas Co.'s No. 1-3409 on the John Coghlin farm, Section 23, is an exceptionally good gas well. Same company is drilling No. 1-3463 on the Julia A. Clark farm, Sections 13 and 18, same township. Same company is drilling No. 1-3446 on the Wesley Tran farm, Section 13. In Eaton Township the Logan Gas Co. found a dry hole in No. 1-3063 on the Bonnie E. Rust farm, Lot 61, there being no sand found.

In Wayne County, Congress Township, the Ohio Fuel Gas Co.'s No. 1-3353 on the Eliza Somerside farm, Section 6, is a gas well above the average, while its No. 1-3397 on the Michael Keyser, Section 5, is only an average gasser at 2,914 feet. Same company is drilling No. 1-3424 on the William Swope farm, Section 7, and No. 1-3436 on the C. F. Myers farm, same section.

No completions were reported from Holmes County, but four new wells started drilling. In Hardy Township the Ohio Fuel Gas Co. is drilling No. 1-3372 on the Thomas Horn farm, Lots 13-18. Arkansas Fuel Oil Co. is drilling No. 5 William Miller farm, Lot 11, Monroe Township, William Detler is drilling on the John V. Dahl, Section 30, Knox Township, and the East Ohio Gas Co. is drilling No. 3 C. O. Ledbetter, Section 14, Richland Township.

In Richland County, Monroe Township, the Ohio Fuel Gas Co. is drilling No. 1-3454 on the William E. Pritchard farm, Section 21.

Knox County

In Knox County, Brown Township, the Ohio Fuel Gas Co. has a good gas well in No. 3-3401 on the A. J. DeLong farm, Section 7, and No. 4-3465 on the John A. Reed farm, Section 10. Upham Gas Co. is drilling No. 5 R. J. Kunkle farm, Section 7. I. E. O'Hail has a very nice gas well on the R. P. Hipp farm, Section 21, Jefferson Township. Harry Perkins has made a location on the William Durbin farm, Section 15, Howard Township.

In Pike Township, Coshocton County, William Stevens' second test on the J. and E. Lake farm, Section 12, shows about 250,000 feet of gas and for the first 24 hours produced 35 bbls. from the sand at from 3,173-3,233 feet.

In Summitt County, Franklin Township, the East Ohio Gas Co. drilled in three nice gas producers in No. 1 C. H. Baucker farm, Section 25; No. 1 Mary Kertez, Section 26, and No. 4 Robert Miller, Section 28. Same company is drilling No. 1 Peter Newhouser, Section 18, Green Township, also No. 1 C. L. Hatcher, Section 29, same township.

In Licking County, Fallsburg Township, the Preston Oil Co.'s No. 3 Wayland Ashcraft farm, Section 11, pumped 2 bbls. from 645-655 feet. Emerald Petroleum Co. made a location for No. 4 on the John E. Martin farm, Section 10. Wehrle Oil & Gas Co.'s test on the Alfred Kreager, Section 36, Hopewell Township, was dry at from 2,829-62 feet. Same company has another dry hole in No. 4 on the Arthus Darnes farm, Madison Township, at from 2,653-2,703 feet.

In Muskingum County, Jackson Township, the Pure Oil Co. made a location on the Otis McKee, Section 5, and in Perry Township the Ohio Fuel Gas Co. is drilling No. 1-3467 on the E. H. Berry, Section 3.

In Athens County, Berne Township, the Ohio Fuel Gas Co. struck a nice gas well in No. 1-3433 on the Guy M. Kasler farm, Section 33, the gas being found in the lower Berea sand at from 1,340-59 feet, total depth 1,367 feet. Same company got a dry hole at No. 1-3342 on the E. R. Galloway farm, Section 17, same township, at 1,016 feet. Same company is starting No. 4-3442 on the Amanda Selby farm, Section 30, and made a location for No. 2-3457 on the John B. Elliott, Section 35. Bailey Oil & Gas Co. is drilling No. 3 W. C. Wells, Section 34. In Ames Township, Kiggins and others are drilling No. 2 C. M. Lovell, Section 3, and the Ohio Fuel Gas Co. is drilling No. 2-3434 on the A. and E. Linscott farm, same section. The Logan Gas Co. made a location for No. 1-3084 on the L. H. Blackwood, Section 31, Carthage Township. Ohio Fuel Gas Co. made a location for No. 2-3476 on the T. R. Phillips in fractional Section 12, Lodi Township, and is drilling No. 1-3373 on the H. K. Winters, Section 34, Troy Township.

In Meigs County, Salisbury Township, the Coal Hollow Oil & Gas Co.'s second test on the R. H. Burdett, Section 22, is a very fair gas well in the second Cow Run sand at from 528-36 feet. The Pure Oil Co. is drilling No. 3 Minnie Kantz, Section 27, Chester Township. In Sutton Township, Tyree and others are drilling No. 8 J. Stobart, Section 17, and No. 1 Martin Ebersback, Section 19.

Jackson County

In Jackson County, the Ohio Fuel Gas Co. has an average gas well in No. 1-3207 on the Peter Radcliff, Section 35, Lick Township, at from 2,594½-2,609½ feet, total depth 2,611½ feet. Same company is drilling No. 1-3262 on the Sabine Jenkins, Section 23, and in the sand at No. 1-3263 on the J. A. Ford, Section 23. Same company made a location for No. 1-3475 on the Talma E. Wright, Section 14, Franklin Township, and the Penn Ohio Gas Co. is drilling No. 5 on the L. M. Evans, Section 2, same township.

In Vinton County, Vinton Township, Townsend and others are drilling a second test on the Leo H. Quick, Section 6, and Patton & Clutts are drilling on the John Martin, fractional Section 3, Knox Township.

In Lawrence County, Mason Township, the Wittmer Oil & Gas Co. found a dry hole on the George Witrock, Section 21, at from 3,746½-55½ feet, total depth drilled 3,870 feet. Inland Gas Corp. found a very light showing of gas from 3,333½-49½ feet, but concluded to drill to the Medina formation in hopes of getting a more prolific gas sand.

In Fairfield County, Rush Creek Township, Merle, Myers and others made a location for a second test on the Joseph J. Johnson, Section 2.

In Guernsey County, Lee & Moseley's test on the Ira A. Cable, Section 11, Cambridge Township, is reported good for 10 bbls. in the Niagara lime, topped at 3,331 feet, and pay sand at from 3,445-52 feet. In Wheeling Township the East Ohio Gas Co. is drilling on the Willis Wilson, Section 11, and Blackstone and others are drilling on the William Mills, Section 20. In Westland Township, the Kemrow Co. is drilling on the Ernest and Fortney Kirk farm, Section 13. Ohio Fuel Gas Co. made a location for No. 1 on the Charles C. Wigginton, Section 17, Jackson Township.

In Wheeling Township, Belmont County, the National Petroleum Co.'s test on the Ross-Hickenbottom, Section 2, is a very good gas well at 923 feet, and the second test is under way on the same lease.

In Morgan County, Marion Township, the Ohio Fuel Gas Co. has an average gas producer in No. 1-3414 on the Frank Hart, fractional Section 34, in the lower Berea sand from 1,640-64 feet, total depth 1,667 feet. Same company has an average gas producer in No. 1-3447 on the Hugh Ellis, Lot 5, in the Salt sand at from 729-35 feet. J. H. McBride is drilling on the Marion Mills, Section 25. The Kemrow Co. is drilling No. 2 Plumey and Riggleman, fractional Section 5, and No. 5 on the Charles H. Dunn, Section 17. In Penn Township, Bowman and others are drilling No. 6 D. H. and O. W. Abel, Section 15, and Mambourg Development Co. is drilling on the J. P. Dougan, Section 2. Hopewell Gas Co. is drilling on the William Coulter, Section 2, York Township.

In Carthage Township, Athens County, the Logan Gas Co. has a dry hole in No. 1-3061 on the W. E. Baughman farm, Section 12, being dry in the Berea grit.

In Spencer Township, Guernsey County, J. E. Patton and others found a dry hole on the Marshall Stone heirs, Section 18. Niagara lime was found at 3,446 feet and very gritty from there to 3,566 feet, and only a slight showing of gas from 3,572-78 feet, then sent to a total depth of 3,586 feet and given up as a failure.

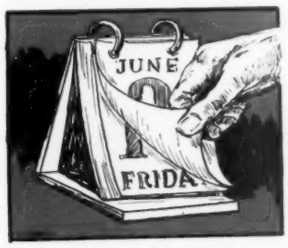
INDIANA FIELDS

There is a big scramble for leases at this time in the extreme southern part of Indiana on account of the good showing of a well drilled on the Leo J. Strassell farm, 4 miles north of Rockport, with 8 feet of sand at a depth of 1,290 feet. The well was given a shot by Jim Williams for the Kentucky Glycerine Co., which caused the well to fill up and flow out of the casing. The action of this well was a surprise to the operators, as all other wells in the southern Indiana Field have been rather light producers. This well is between Rockport and Rock Hill and almost directly north of Owensboro, Ky. Its value is yet unknown, as it has not been given a 24-hour test on account of pipe line facilities, but it appears to be sufficiently large to excite the oil people and there was a rush of scouts across the Ohio Riven into Spencer County, and all appear to think that a big pool will be found, which will be the first pool of any consequence in that part of Indiana. More can be told of the prospect of a pool after a couple of additional holes are drilled.

Only one other completion was reported from Indiana and that was a dry hole drilled by the Bement Oil Co., 300 feet

(Continued on Page 111)

prepare for tomorrow



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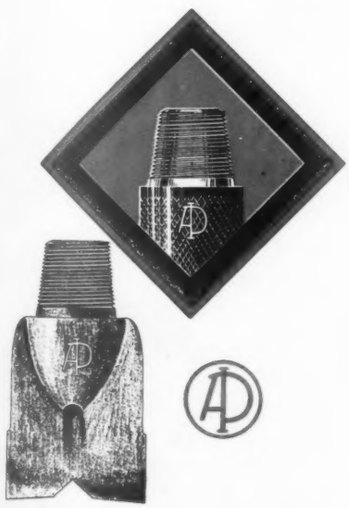

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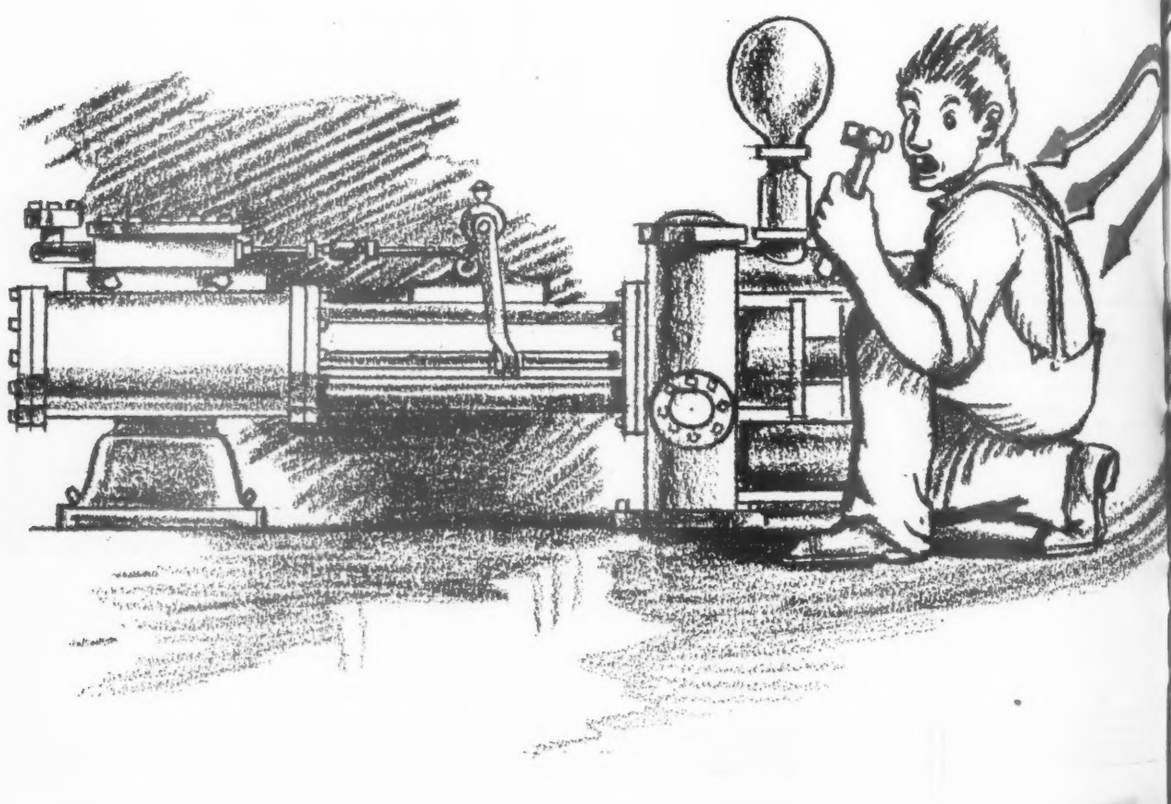
The Brewster
COMPANY~INC.
SUCCESSORS TO OIL CITY IRON WORKS INC.
Shreveport, Louisiana

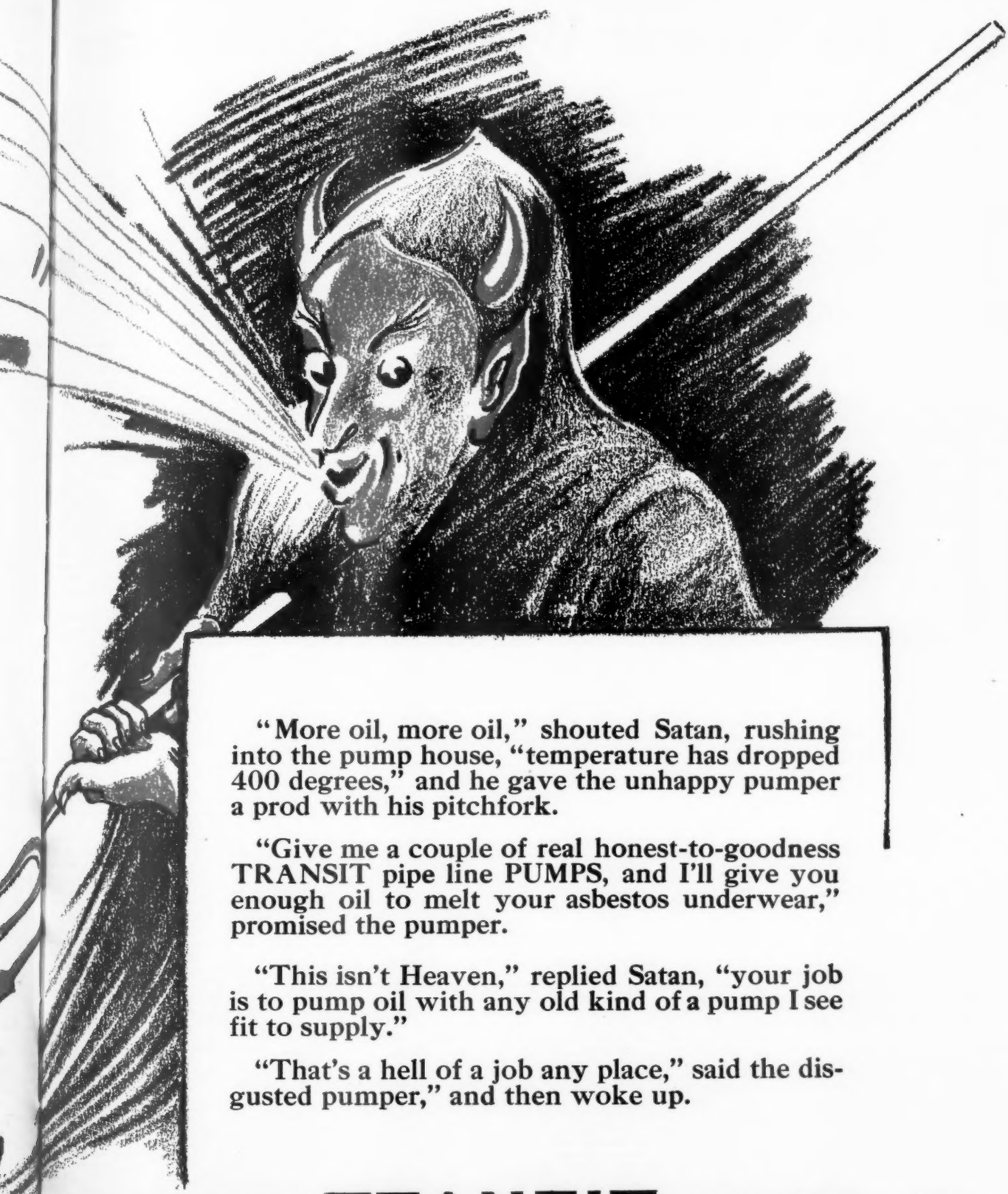
"MORE OIL MORE OIL"

shouted satan

An experienced pipeliner dreamed he died and was consigned to the infernal regions. Being very short on pipe line men, Satan was much pleased, and delegated him to run a mainline pump station. It seems they had just changed fuel--from brimstone to oil.

The first day on the new job was a tough one. No. 1 pump blew up and quit cold; No. 2 limped along with but one side working, and at four o'clock in the afternoon, the pumper was completely fagged out.





"More oil, more oil," shouted Satan, rushing into the pump house, "temperature has dropped 400 degrees," and he gave the unhappy pumper a prod with his pitchfork.

"Give me a couple of real honest-to-goodness TRANSIT pipe line PUMPS, and I'll give you enough oil to melt your asbestos underwear," promised the pumper.

"This isn't Heaven," replied Satan, "your job is to pump oil with any old kind of a pump I see fit to supply."

"That's a hell of a job any place," said the disgusted pumper," and then woke up.

Agents

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NATIONAL TRANSIT PUMP & MACHINE CO. Oil City, Pa.

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NEW YORK PHILADELPHIA PITTSBURGH
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Play for Lower West Virginia Area

Number of Counties Not Yet Thoroughly Tested to Be Drilled. Ravenwood and Butler County, Pa., Get Attention

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Mar. 11. — The new pools in Butler County, Pennsylvania, and in Ravenwood district, West Virginia, completed no new wells but these two sections are the only ones attracting attention at this time. Nearly all of the wells drilling, about 10, in the two districts are important as to location. When completed they will show if the producing formation extends in any direction from present production.

With the return of spring, if the market remains firm, there will be some wildcat operations in the lower West Virginia counties. A number of counties in the lower part of the State have not been so thoroughly tested as to preclude the possibility of the discovery of a new pool. In the event failures result there will be nothing left but to develop more closely the old fields and the amount of new production from that kind of drilling will be small.

At this time and for many months, the demand for crude of the Pennsylvania grade has been greater than the available supply. The future demand for this grade of crude is likely to increase instead of diminish. This will prove a valuable asset for the Eastern producer. In all sections that produce oil of the Pennsylvania grade producers are bending every effort to get a little more new production by shooting and cleaning out the old wells. No wells are allowed to stand idle now if they can be made to produce a small amount of crude. Operators do not now abandon a well before drilling through all sands and finding them barren.

WEST VIRGINIA

The West Virginia fields completed a number of wells and most of them gas wells. The gas companies are very active in Lincoln, Boone and Kanawha Counties. The wells are not large but of a size that makes it profitable to drill for them.

In Carroll district, Lincoln County, the United Fuel Gas Co. completed a Berea grit gasser at No. 2,352 on the Lincoln Land Association property. In the same district, L. R. Sweetland completed a second test on the Mary Hilbert farm. It is a gasser in the Big Injun sand. In Jefferson district, Earl Cameron's No. 3 on the Golden Stone farm is a gasser in the Berea grit. In the same district Earl Cameron has a gasser in the Berea grit on the J. A. Stone farm.

In Washington district, Boone County, W. G. McCorkle and others have a gasser in the Big Injun sand on the J. A. Covert farm. In Smithfield district, Roane County, the United Fuel Gas Co.'s No. 2,575 on the J. G. Keffer farm is a gasser in the Big Injun sand.

In Ravenwood district Jackson County, the Heck Oil Co.'s No. 2 on the O. J. Brown farm is a 10-bbl. pumper in the Berea grit. In Center district, Calhoun County, W. H. Bickel has a gasser in the Big Injun sand on the J. H. and J. C. Hayhurst farm.

Monongalia County

In Cass district, Monongalia County, the Carnegie Natural Gas Co. has drilled deeper its test on the Elmer Brand farm. It is a gasser in the Bayard sand. In the same district, the same company is fishing for tools in the Grant Stephens farm, at a total depth of 3,007 feet. In Clay district, the Philadelphia Gas Co. has started to drill a second test on the J. H. Headley farm. In the same district, the Carnegie Natural Gas Co. has started to drill a second test on the Simon Ammons farm. In Clay district, Wetzel County, the Littleton Gas Co. is due in the Big Injun sand on the Wade-Cain farm.

On Nutter Fork, West Union district, Doddridge County, A. J. Gribble completed a test on the White heirs' farm. It is a light gas well in the Gordon sand. In Carroll district, Lincoln County, L. R. Sweetland completed No. 41 on his own farm and has a gasser in the Berea grit. In Grant district, Cabell County, the Aetna Oil & Gas Co. has drilled its test on the C. H. Hall farm to 3,615 feet and shut down.

Shooting Increases Production

In DeKalb district, Gilmer County, the Hope Construction & Refining Co. shot its No. 2 on the R. L. Weaver farm, increasing its production from 5 bbls. a week to 8 bbls. a day. The same company shot No. 5 on the same farm and increased its production from 6 bbls. a week to 7 bbls. a day.

In Sherman district, Calhoun County, the Virginian Gasoline & Oil Co. has completed in the Big Injun sand a test on the Leeson & Everett Proudfoot farm good for 5 bbls. a day. On the Ridge, one-half mile west of McFarlan Station, Murphy district, Ritchie County, the Southern Oil Co.'s second test on the William Lynch heirs' farm is a very light pumper in the Big Injun sand.

Boone County

In Sherman district Boone County, Godfrey L. Cabot has a light gasser in the Berea grit at No. 5 on the Sherman Development Co.'s property. In Crook district, his No. 5 on the Youghiogheny Coal Co.'s property is a light gasser. In Washington district, the Owens Bottle & Machine Co. has a light gasser on the B. S. Ballard farm. In the same district, the same company has a fair gasser on the Isaiah Nelson farm. In Scott district, the Hope Natural Gas completed No. 7,227 on the F. B. Chambers farm as a light gasser.

In Walker district, Wood County, the Pleasant Hill Gas Co. completed in the Maxon sand a second test on the R. [illegible] hall farm. It is not better than a 3-bbl. pumper. In Williams district, same county, C. D. Reed is due in the Salt [illegible] on the Clara McDongal farm. In Union district, the Economy Oil Co. is drilling another test on the Gribble heirs' farm.

In Grant district, Pleasants County, Frank Knox and others are drilling on the D. R. Westbrook farm. In the same district, F. E. Russell & Co. are drilling on the H. S. Russell farm. Cavett & Rinehart are drilling a second test on the Redas Reynolds farm.

Roane County

There is considerable activity in Roane and Calhoun Counties. In Geary district, Godfrey L. Cabot has a 3-bbl. pumper on the John Smith farm. In the same district, the South Penn Oil Co.'s No. 5 on the Catherine H. Nixon farm is a 10-bbl. pumper in the Berea grit. There are seven wells drilling and eight rigs up in Roane County. In Spencer district, Calhoun County, Decker & Grow have a gasser at a second test on the I. N. Mc[illegible]ford farm. In Center district, W. H. Bickel had the same luck on the Ben[illegible] heirs' farm. In Washington district, W. H. Bickel has a gasser on the Mar[illegible] Hays heirs' farm. In Calhoun County there are eight wells drilling and six rigs up.

In Duval district, Lincoln County, the United Fuel Gas Co. has completed No. 1,978 on the Horse Creek Land & Min[illegible] Co.'s tract. It is a gasser in the Berea grit. In Lincoln County there are 10 wells drilling and 9 rigs up. In Boone County, there are 20 wells drilling.

Ravenwood District

The new development in Ravenwood district, Jackson County, is the most interesting. The Heck Oil Co. is drilling three wells and South Penn Oil Co. the same number. All can be regarded as test wells for that district.

In Mannington district, Marion County, the Clifton Oil Co. has completed No. 3 on the Simon Moore farm. It is a gasser in the Gordon sand. In Collins Settlement district, Lewis County, H. P. McGinnis has now completed his test on the L. D. Anderson farm. It is a gasser in the Big Injun sand. In Union district, Lincoln County, the United Fuel Gas Co. has a gasser in the Berea grit on the G. W. Allen farm.

In Mannington district, Marion County, the Continental Coal Co. has started to drill on the John Haddix farm. In the same district, the Carnegie Natural Gas Co. is building a road to a location on the M. E. Keener farm. In Geary district, Roane County, the Hollywood Oil & Gas Co. has started to drill on the George White farm. In Reedy district, the Heck Oil Co. has made the location for No. 4 on the O. J. Brown farm.

Calhoun County

In Sherman district, Calhoun County, the Hope Natural Gas Co. has a rig up on the Clinton Shock farm. The same company has made a location on the M. Westfall farm. The same company has rig timbers at a location on the T. S. Cunningham farm and is building a rig on the William Lynch farm. In Sheridan district, M. F. Crowley has made location on the W. H. Maze farm. In Otter district, Braxton County, the Union Oil & Gas Co. has started to drill on the M. J. Perkins farm.

In Grant district, Ritchie County, the New York Petroleum Co. is rigging up on the Jacob Shrader farm. In Walker district, Wood County, Leeton & Co. have started to drill on the D. M. Cupland farm. In Burning Springs district, Wirt County, R. G. Wagner has rig mo-

(Continued on Page 167)

WORK IN KENTUCKY-TENNESSEE AREA HELD BACK BY WEATHER CONDITIONS

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., Mar. 9.—Development work in all parts of Kentucky has been slowed down for several weeks on account of bad weather, but with the advent of spring great activity is expected, as most of the lease owners are anxious to get busy testing their new holdings in various parts of the State, more generally in the western area in more than a dozen of counties. During the winter little has been accomplished in the eastern portion, the bulk of the work being confined to the western area, especially in Ohio, Davis and adjoining counties. A large amount of crude out of the western division is finding its way by barges from Owensboro to Louisville, there being several each week, each containing about 5,000 bbls., shipped by the Illinois Pipe Line Co., and the Producers Pipe Line Co., while some is shipped by tank cars from various sections of the producing counties, which also goes to Louisville.

An interesting development is now under way to test a block of 2,600 acres west of Owensboro, in Daviess County, by the Sidney Petroleum Corp., primarily for natural gas. The first of a series of three tests to be drilled is located on the Rogers & Church farm, better known as the Ferns Hill Coal farm, and is expected to find the oil and gas sands at a considerably lower depth than in the Brown, Hayden or Red Hill Pools of the county. The second well will be drilled on the Booth farm, a little to the northeast of the initial venture on the Rogers & Church. The third test has been held up awaiting better weather so contractors can move in their tools.

Two other pools in Daviess County are attracting operators, the Jones Pool and the Burton Pool, while in Ohio County the outstanding area at this time is the Ellis Bartlett 54 acres, almost directly west of Taffy, and southwest of the Ambrose-Weller Pool which put Ohio County on the oil map. The Bartley test was on the order of a wildcat and completed last month for a 200-bbl. producer. Since then two more wells have been drilled equally good, in fact No. 3 is making the best showing of the trio. This is the lease that Hupp and Duff purchased from George Engle thirteen thirty-seconds of the lease after the first well was drilled in for the sum of $20,000.

Ask Approval of Leases

The Central Trust Co. of Owensboro, as committee for J. H. Blair Gilmour, confined in the State Hospital for the Insane, filed a petition in the Circuit Court of Daviess County, seeking the approval of a lease to B. G. Pratte and C. K. Pratte, of 258 acres of land on Green River, near Curdsville. This large farm is in the extreme western part of Daviess County, between the Curdsville Fault Zone on the northwest and the Sorgho Fault Zone on the southeast, and close to the Henderson County line.

Mrs. Sophia Bell Stinnett, as guardian for her two children, Catherine and William Stinnett, filed a petition in Circuit Court seeking to have approved a lease to M. E. Vickers and B. B. Rhodes on 83½ acres of land near Whitesville, in Daviess County, for oil drilling. Mrs. Stinnett set out she had leased the land tentatively to the drillers.

Late advice is that R. W. McMahan, of Owensboro, has taken over the Mrs. Sophia Stinnett lease, 2 miles southeast of Whitesville, and has made a contract with B. B. Rhodes and Henry Vickers for putting down a well at once. This Stinnett lease offsets the Swarthout, Rhodes and Botts lease on the Ed Rhodes, on which two good wells are now producing. The Circuit Court has approved the leasing of both blocks of acreage. Pratte Brothers will start a well at once on the Blair Gilmour 259 acres near Curdsville. This is expected to be deeper drilling than in many of the pools in Daviess County.

Week's Work

A summary of the week's work in the Kentucky fields shows 22 completions, 14 producers with an initial production of 710 bbls., 8 dry holes and no gas wells.

County—	Comp.	Oil Wells	Prod.	Dry
Daviess	14	8	175	6
Ohio	8	6	535	2
Total	22	14	710	8

WESTERN KENTUCKY

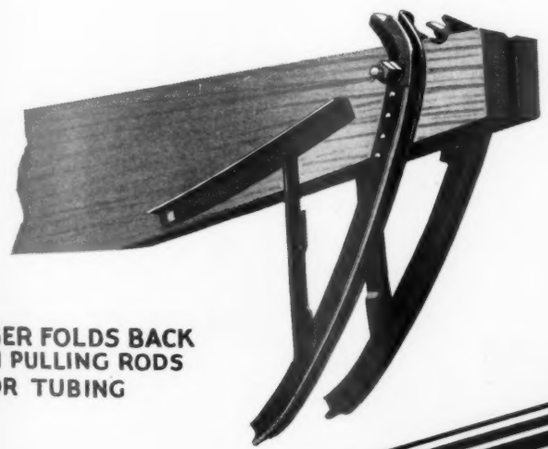
The eastern end of Kentucky failed to report any completions since the last re-

(Continued on Page 111)

REX BEAM HANGER

PRODUCES A STRAIGHT LIFT
SIX FOOT PUMPING STROKE FROM
A STANDARD WALKING BEAM

HANGER IN POSITION
FOR PUMPING



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WHEN PULLING RODS
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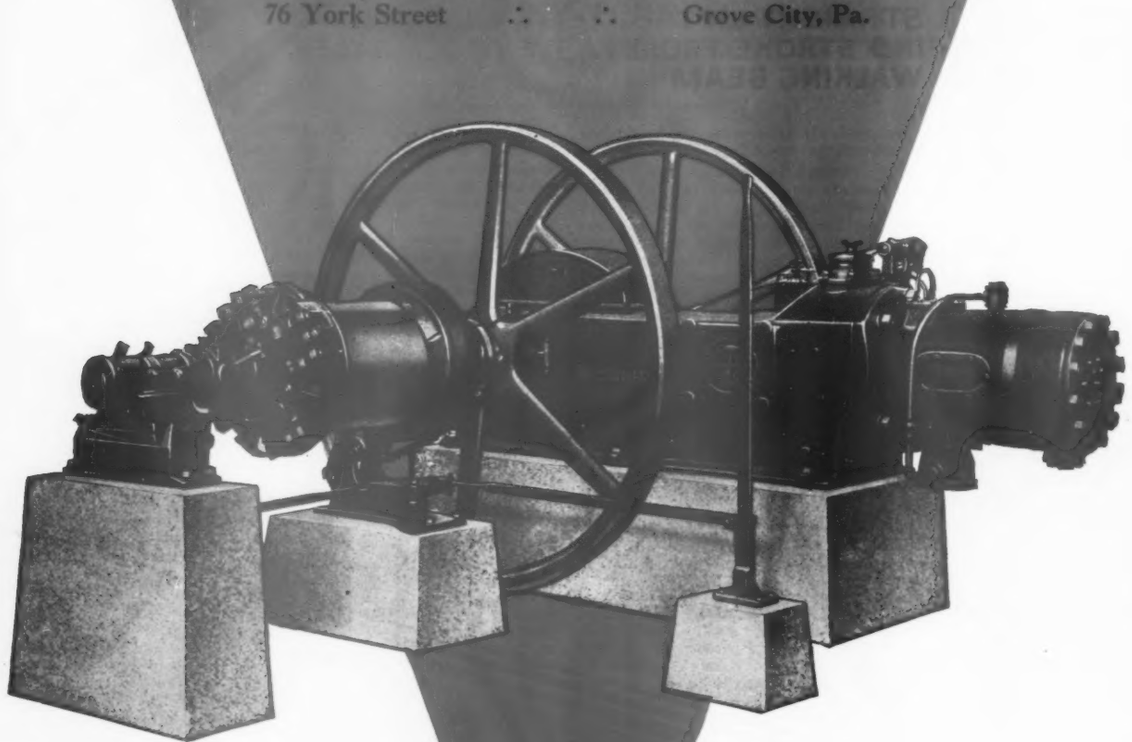


BESSEMER

BESSEMER OIL FIELD ENGINES – COMPRESSORS VACUUM PUMPS – ROLLER PUMPING POWERS

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

USE DUMP BAILER METHOD

I have drilled a pair of twin wells in the old Macksburg district in southeastern Ohio. The first well was a light pumper in the Macksburg sand at a depth of 1,140 feet. I then started to drill a deeper twin well to the Berea grit. This second well was located 50 feet from the first one. At a depth of 1,325 to 1,485 feet we drilled through the Salt sand and got a hole full of water. Three days later the first well, producing from the Macksburg sand went entirely to water. The first well was cased with 6¼-inch to 600 feet, below which there was 540 feet of open hole. The second well was cased to 605 feet with 6¼-inch, below which there was 880 feet of open hole. The Macksburg sand was exposed in the open hole below the 6¼-inch in the second well so that water from this well is evidently invading the Macksburg sand and drowning out the first well. In this district there are no pumps adequate for handling mud or cement; consequently, I can not employ the usual two-plug method or any other method of cementing that involves the use of high-pressure pumps. Can you advise me what to do to save both wells?—R. M. W.

The situation that you describe calls for the exclusion of the invading water from the Macksburg sand. This can be accomplished by reaming out the second well, and running the 6¼-inch casing to a point below the Macksburg sand, where it should be cemented by the dump bailer method, using enough cement to seal completely the Macksburg sand against both top and bottom waters. The dump bailer method of cementing is fully described in United States Bureau of Mines bulletins 163 and 232 and also was described in The Oil and Gas Journal in the issue of October 18, 1928.

Under the conditions described by you it will be necessary to bridge the hole just below the new casing point before undertaking the dump bailer cementing job. It will then be necessary to set a string (of 5-inch casing) just above the Berea grit so as to exclude the Salt sand water from that formation.

The crude method of dumping mud or even hunks of clay into wells to meet conditions in some of the eastern fields similar to those that you describe is rarely successful and can not be recommended.

If you could ream out the hole to some deep casing point below the Salt sand and then run 2-inch tubing to a point near bottom and pump in mud until you established good circulation of the mud to the surface you could probably kill the flow of water. You could then run casing to a position just above the deep casing point and again establish circulation of mud to the surface by pumping as heavy a mud as possible down the inside of the casing through a tight head, after which you could seat the casing with reasonable assurance that the Salt sand water had been mudded off. There would be more assurance of success, however, if you completed the job with cement by either the tubing or two-plug method. But without any of the necessary equipment for this type of work, you are limited to the dump bailer method. It is unfortunate that proper mudding and cementing methods are not practiced in these old fields because of the expense involved.

DETERMINING FLUID LEVEL

Will you please answer the following questions in the Field Problems column in your Journal? I have wells producing oil and gas from a depth of 800 feet to 1,200 feet. The sand in these wells is approximately 60 feet thick, but is separated in the center with about a 30-foot break. The lower sand appears to produce most all the gas, and the top sand produces most all the oil.

I am carrying a fluid level of approximately 600 feet and a casinghead rock pressure from 50 to 150 pounds. Is there a way of determining the proper amount of fluid level compared with rock pressure to prevent the gas sand from absorbing the oil from the oil sand? Will the difference in fluid level change the amount of absorption?—N. F. T.

The answer to this question depends largely upon the relative pressure in the oil sand and in the gas sand, but it is not easy to determine these relative pressures. So long as the pressure in the gas sand remains equal to or greater than that in the oil sand, there is not likely to be any appreciable loss of oil in the underlying gas sand, but if the pressure in the gas sand is below that in the oil sand there may be some loss of oil in the gas sand. Under such conditions it would be well to maintain only such fluid level as is necessary to keep the oil sand covered.

If you wish to go to the expense of determining the relative pressures in the oil sand and gas sand, this can be done by setting a formation tubing packer in the break between the two sands, and then tubing the gas directly to the surface where its closed-in pressure can be measured. Then in this or in another well, pack off the gas entirely, run a bottom hole pressure bomb and allow it to stay in the well with the casinghead closed in until the well rocks up to its maximum closed-in pressure. Then withdraw the bottom hole pressure bomb and read the pressure in the oil sand.

These operations would have to be repeated in several wells to make certain that the results were reliable.

A method that would prevent the loss of oil into the gas sand and which would avoid these expensive tests would be to set a formation packer between the oil sand and the gas sand. This packer should be equipped with a one-way relief valve so that the gas could flow upward only when the gas pressure exceeded the oil pressure, but which at all times would prevent the oil from flowing downward into the gas sand. This packer could be run on the string of tubing through which the oil is to be pumped, and the anchor tubing could extend on to the bottom of the hole with a plugged joint placed below the working barrel and perforations to prevent any flow of oil or gas through the packer except what gas might flow through the relief valve.

A left-thread connection or a special type of compression-seat might be used to allow the tubing and pumping equipment to be pulled without disturbing the packer. If the use of a formation tubing packer is not feasible, a liner in which to set the packer might be cemented in the break between the oil sand and the gas sand by bridging the hole just below the break and then cementing in the liner just above the bridge.

Another method of handling the situation might be to plug off the gas sand entirely until the oil sand is exhausted, and then drill out the plugs in a few wells, close these wells in and let the gas repressure the oil sand. Packers with relief valves could be used in these pressure wells as previously described, but without the tubing.

Or to keep the expense as low as possible, it might be best to operate the wells just as they are with the oil and gas sands exposed to each other and trust nature to equalize the pressures in the two sands. There is some question whether the loss of oil in the underlying gas sand will be enough to warrant the rather expensive procedures that have been outlined here. If the fluid level is maintained just high enough to keep the oil sand covered, it is doubtful if any great loss of oil will occur, because there will always be a tendency toward pressure equilibrium. It is possible that gas from the lower sand will maintain the pressure in the oil sand and thus sustain the oil production.

The problems presented by this question are rather broad and leave room for the operator to make his own choice and apply his own ingenuity. Field and economic conditions, which have not been described in the brief question submitted, must determine the choice of the method that will best meet those conditions.

WHY IS IT CALLED THAT?

SCRAPER-CHASER

Among sundry new jobs that came about with adoption of the pipe line as a means of transporting oil was that of the scraper-chaser. The scraper itself is a device with self-adjusting spring blades which is introduced into a pipe line to clean it. As it is carried through the pipe by fluid pressure the blades remove accretions adhering to the walls and obstructing the flow of oil. The scraper is known also as a go-devil.

When a scraper, or go-devil, is started on its way in a pipe line a man follows it on the ground above, guided by the sound it makes. This man is the scraper-chaser. His task is not difficult as a rule, unless the line is buried to an unusual depth. If the scraper's progress is halted by accumulations through which it cannot cut its way, it is the duty of the scraper-chaser to inform his foreman or superintendent.

GAUGE DIFFICULT TO READ

I would like some information as to the correct method of reading a pressure gauge. The gauge in question reads from 0 to 500 pounds. The 0 to 50 space is divided into 8 parts, while the remaining 50-pound spaces are divided in 10 parts (5 pounds each). Do the eight divisions from 0 to 50 represent 6¼ pounds each? Why are gauges marked in this way?—H. A. S.

The calibration of your gauge into eight divisions between the 0 and the 50-pound mark is unusual and suggests the possibility of an error having been made in calibrating the dial. You should check this by writing to the manufacturer of the gauge. Whether or not each of the eight divisions below the 50-pound mark represent 6¼ pounds is uncertain and depends upon the peculiarities of the individual gauge. The only way to make sure of this is to check your gauge against an accurate test gauge, or preferably, check your gauge directly against a dead weight tester.

It is good practice to check the accuracy of pressure gauges at regular intervals and to make a correction table for each gauge if accurate readings are desired. It is also good practice to use pressure gauges up to only half of their calibrated capacities. If a pressure gauge is long subjected to pressure of more than 50 per cent of its calibrated capacity it tends to take on a permanent set due to what is called "hysteresis," and the accuracy of the gauge is destroyed. If your gauge is calibrated from 0 to 500 pounds, you should not subject it long to pressures above 250 pounds.

HERE'S A HELPFUL LETTER

In reading of the difficulty of A. T. W. in shutting off water in the 8¼-inch hole, would like to offer a suggestion which I have tried and which others have used successfully. This method is most successful where you are trying for a shutoff in lime or hard rock and where there is no gas agitation.

The first procedure is to let the water equalize in the hole by pulling the casing off bottom about 20 feet. Next get some coal slack and some stiff mud from the slush pit. The mud should be very stiff. Mix as much coal slack as possible with enough mud to make a mud ball about 6 inches in diameter. Drop enough of these balls into the hole (slowly, so as not to bridge) to fill about 10 or 12 feet. Then set the casing back on bottom and let set for 12 hours. This should procure a shutoff. It is advisable if deeper drilling is to be done to keep 200 or 300 feet of water in the hole until the square of the stem is below the casing shoe.

This letter is written by way of helpful advise from my experience and not as a chance to pop off.—J. E. H.

GELATIN AND NITROGLYCERIN

Can you tell me how many pounds of gelatin are equivalent to one quart of nitroglycerin for shooting an oil well? —F. S. A.

This department has received various estimates upon the number of pounds of gelatin that are equivalent to one quart of nitroglycerin, ranging from 1¼ pounds up to 3¼ pounds of gelatin to give an explosive effect equal to that of one quart of glycerin. In view of the differences in these figures and the possible variations in the qualities of the explosives, it is suggested that you communicate directly with the manufacturers of such explosives for more accurate information.

EQUIPMENT AND SUPPLIES

DEVICE REDUCES PERIL OF BOILER EXPLOSIONS

Boiler explosions usually are traceable to failure of the crown sheet owing to the water level becoming low. Explosions, with their consequent loss of life and damage to equipment can be diminished by keeping the water level well above the crown sheet. This demands constant attention by the operator. Such attention is only possible where large installations are operated by competent men. Even in such cases, boiler explosions have occurred.

A solution for the explosion problem is offered in the Thermic siphon. Although explosions are possible in siphon-equipped boilers, the possibilities are reduced, and when they do occur their violence is not so great.

The siphon can be installed in any firebox type boiler. The neck of the siphon is flanged and fitted to a hole drilled in the tube sheet. It is arc welded internally and externally. The top, or funnel opening of the siphon is flanged to fit the radius of the crown sheet (the metal in the crown sheet being displaced by the top of the siphon) where it is arc welded, both internally and externally, and stayed to the wrapper sheet. This construction then forms a brace to the crown sheet and adds about 5 to 7 per cent heating surface to the firebox.

As the boiler is fired, the water circulates, according to the rate of firing, up through the siphon and actually forms a jet at the top of the siphon. In the event of low water in siphon-equipped boilers, this jet of water continues to rush up through the siphon and pours water continuously over the crown sheet, making it almost exempt from the possibility of failure.

TRADE LITERATURE RECEIVED

The Fort Worth Laboratories, instrument department, Fort Worth, Tex., has ready for distribution its new illustrated catalog covering laboratory apparatus.

"What's New With Waukesha?" is the title of an attractive booklet describing new designs of engines developed by the Waukesha Motor Co., Waukesha, Wis.

The current number of "Vent," published in the interest of employes of the Gilbert & Barker Manufacturing Co., Springfield, Mass., contains several articles emphasizing the importance of thrift.

The standard grading for motor oils worked out by the Society of Automotive Engineers is explained in the current issue of the Mack Bulldog, published by Mack Trucks, Inc., New York.

In an attractive 68-page booklet, "Dependability in Steel Castings," the Sivyer Steel Casting Co., Milwaukee, Wis., describes the process of making a steel casting and tells interestingly of tests to which Sivyer castings are subjected.

The Wagner Electric Corp., St. Louis, Mo., has issued a bulletin containing instructions for the installation and operation of power and distribution transformers.

The Natural Gas Equipment Co., Los Angeles and Tulsa, is sending out a bulletin on gas fuel regulators made by the Wilgus Manufacturing Co., Los Angeles. A list of users in the petroleum industry is given.

The Emsco Derrick & Equipment Co. is sending out from its Los Angeles, Calif., office bulletins covering steel derricks and wheels, reverse and friction clutch and three-speed draw works, along with reproductions of advertisements that have appeared in The Oil and Gas Journal. All are perforated for insertion in the Emsco general catalog kept in oil company offices.

RESALE POLICY ADOPTED

P. N. Guthrie, Jr., vice president of the Reading Iron Co., Reading, Pa., delivered a talk before the Eastern Supply Association convention recently held in New York. Mr. Guthrie announced the adoption of the company's resale policy. He expressed the hope that manufacturers generally, acting independently of each other, might soon adopt a similar policy which he said would lessen the tendency toward ruinous prices.

FISH WEIGHING 25,000 POUNDS HELD BY ROPE

L. C. Geisendorf, of the firm of Kitchen & Geisendorf, recently called on the Putnam Supply Co. at Brownwood, Tex., to tell a true fish story about a Broderick & Bascom Rope Co. line he had purchased from the firm. While drilling near Santa Ana, Tex., said Geisendorf, the entire string was lost in the hole. Its theoretical weight was 24,970 pounds.

"Add to this," said Geisendorf, "the fact that the bottom of the pipe was plugged and came up full of water and mud, and the whole string came together and you can readily see we had well over a 25,000-pound load. The whole thing was jarred through 190 feet of lime on the beam and then lifted on a straight pull to the top of the hole with a seven-eighths-inch 6 by 19 Flexsteel line.

"After the string was loose it was lifted by placing a 90 horsepower Waukesha engine in low gear, speeding it up to full speed and dropping in the clutch. By this method the pipe was lifted a foot or two at a time before choking down the motor. The line stretched out until it looked like a nine-sixteenths-inch line, but it never quit."

HINDERLITER ELECTION HELD

At the annual meeting of the Hinderliter Tool Co., Tulsa, the directors were re-elected as follows: A. W. Leonard, H. B. Hendershot, C. A. Mechling, P. E. Elliott, F. J. Hinterliter, F. I. Louis, C. W. Grimes, D. Vensel and F. G. McClintock.

The directors re-elected officers as follows: A. W. Leonard, president; F. J. Hinderliter, vice president and general manager; P. E. Elliott, second vice president; Charles W. Grimes, treasurer, and H. B. Hendershot, secretary and assistant treasurer.

HAYS ISSUES NEW CATALOGS

The Hays Corp., Michigan City, Ind., manufacturer of combustion efficiency instruments, has issued two new catalogs. Catalog RA-29 contains 20 pages of illustrations and descriptive matter on Hays automatic CO_2, draft and flue gas temperature recorders. Typical charts are reproduced in actual size and colors. Catalog AA-29 contains 16 pages of text and pictures descriptive of Hays flue gas analyzers and Hays portable combustion test sets, with an introduction on "What Flue Gas Analysis Tells Us."

OPENS NEW ORLEANS OFFICE

The Reading Iron Co., Reading Pa., manufacturers of puddle wrought iron pipe, has established a new district sales office in New Orleans, La., under the direction of George E. Tyson. Mr. Tyson was formerly of the Reading district.

BARBER-GREENE IN TULSA

The Barber-Greene Co., Aurora, Ill., manufacturer of ditchers, has established a branch office in Tulsa. Carl Raymond is the field representative working out of this office.

AUTOMATIC CATHEAD HAS GOOD FEATURES

The new automatic cathead manufactured by the Hill & Foster Co., Wichita Falls, Tex., has an arrowhead type groove, which prevents the line, when slackened, from coming off the drum. This increases the power of bringing the line closer to the shaft. It also lightens the line to the tongs by eliminating the heavy chain formerly used. Any device

making partial revolutions on a rapidly moving shaft encounters severe shocks if stopped by steel meeting steel. Rubber shock absorbers are added to receive this jar on the Hill & Foster cathead. All wearing parts can be replaced while the cathead is on the rig.

All parts are of uniform size throughout with the exception of the driving flange, whose bore necessarily must be the same as the diameter of the shaft to which it is to be keyed.

NEW GENERATOR DEVELOPED

The Prest-O-Weld type MP-101 medium-pressure acetylene generator has been developed by the Oxweld Acetylene Co., New York, especially to meet the demand for a stationary or portable acetylene generator that can be used in connection with either medium-pressure or low-pressure welding and cutting blowpipes. This generator is said to be adequate for any type of welding or cutting operation and can be carried from place to place on a truck or wagon.

A. T. & T. PLANS EXPANSION

A construction program calling for an expenditure of nearly $82,000,000 on new long distance telephone facilities during 1929 has been authorized by the American Telephone & Telegraph Co., according to an announcement by T. G. Miller, general manager of the long lines department of that company. This is an increase of 67 per cent over the amount spent by the company for similar work in 1928, the previous record year in construction.

THIRTY-NINTH PLANT OPENED

The thirty-ninth acetylene gas plant ... the Prest-O-Lite chain, in Houston, Te... has started operations and will supp... dissolved acetylene for welding and cu... ting to local industry. A. J. Harrow... is superintendent of the new plant.

TEMPERATURE CONTROL IMPORTANT TO GAS MFR.

"Temperature control possesses many advantages when applied to isolated operations, but it is especially useful when the operation is one of a series of continuous operations," says an article on temperature control in the current number of Instrument Investment News, published by the Consolidated Ashcroft Hancock Co., Inc., New York, makers of American industrial instruments.

"Gas men understand the need of carrying out each step in the purification process under the best and most efficient conditions. They also understand that if this condition is not fulfilled, the entire continuity of the purification process will be disturbed.

"The first step in the purification of gas comes in the primary condenser. The essential function of the primary condenser is to cool down the gas to the most suitable temperature for subsequent extraction of tar in the tar extractor. The gas usually enters the primary condenser at about 230 degrees Fahrenheit, and is generally leaves the condenser at 105 degrees Fahrenheit. At the latter temperature the tar extractor will efficiently remove the tar from the gas without its carrying along any more than a minimum of the light oils. A temperature which is either higher or lower than this one will result in inefficient operation of the tar extractor, and will reduce the B.t.u. value of the gas.

"Hence, automatic control of the temperature within the primary condenser is a matter of great importance to the gas works.

"All uncertainty in the operation of the primary condenser, which does exist when manual control is practiced, is thus eliminated. The controller maintains exactly the right flow of cooling water through the condenser at all times. Thus the gas leaving the condenser is at a definitely known temperature."

BUSINESS NOTES

F. B. Hogins has joined the accounting department of the Lucey Products Corp., Tulsa. Mr. Hogins started originally with the New York office of the company and then was transferred to the North Texas Supply Co., at that time a subsidiary of the old Lucey Manufacturing Corp.

R. E. Ratcliffe of Dallas, Tex., formerly with the Republic Rubber Co., has joined the Wickwire Spencer Sales Corp. and will cover Dallas, Fort Worth and Houston, Tex., and Shreveport, La.

R. M. Cook has taken charge of district sales for the Byron Jackson Pump Co. in Oklahoma City.

R. A. Shilbauer, for several years assistant advertising manager of the Chain Belt Co., Milwaukee, Wis., has been promoted to advertising manager. He joined the company as a rate-setter in 1920.

AUTOMATIC BATTERY CHARGER

The General Electric Co., Schenectady, N. Y., has developed a completely automatic system for charging storage batteries used in electric industrial trucks, street trucks, tractors and electric locomotives. Several modifications of this system have been made to suit special local conditions.

"If Continental sells it – there is no better"

D+B

Simplex Stuffing Box

Polish Rod Clamp

Seat and Ball

Regular Pump

Upset Nipple

Simplex Hook

A.P.I. Coupling

Swage Nipple

Insert Pump

D+B A.P.I. Sucker Rods

Hydraulic Valve

Mouse Trap

Now sold exclusively by

CONTINENTAL SUPPLY COMPANY

all D+B products

Simplex Elevator

Polish Rod Eye

Ball Guide

Drop Forged Tubing Tong

EMSCO

Protected by Steel

EMSCO DERRICK & EQUIPMENT COMPANY

LOS ANGELES, CALIF., HOUSTON, TEXAS-DALLAS, TEXAS

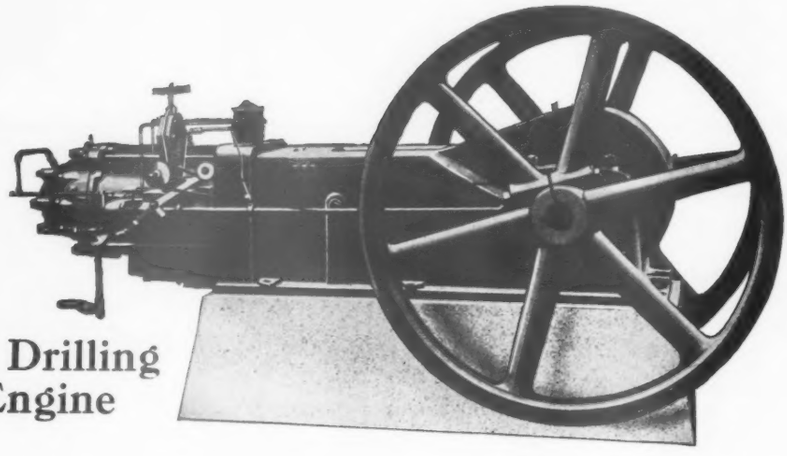
U. S. A.

EXPORT OFFICE: 150 BROADWAY

NEW YORK CITY, N. Y.

U. S. A.

EMSCO STEEL EQUIPPED WELLS ARE SAFE



Oil Drilling Engine

New Franklin Valveless oil drilling engine. Type "OF" ample power, simplicity, easy to install. Easy to start. Low fuel cost.

Send for information.

FRANKLIN'S YOUR CHOICE

Because it fits your needs. When you load a Franklin Engine on your truck at the station you'll be surprised by the compactness. In fact, the Franklin is so compact you'll kind of wonder whether such a light, handy engine can show all the strength and stamina claimed for the Franklin.

After she's set up and you let 'er shoot, she displays so much power and flexibility you'll get to thinking she must be burning herself out. Then, with several years of work, when you look over your fuel bills and see how low they are; when, upon examination, you find the engine in good condition, even after years of hard work—there is only one thing to conclude—and that is what we have concluded.

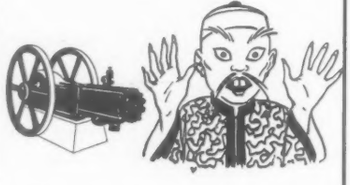
The combination of fine material and expert designing reduce the power expense so much that installation with Franklin's is justifiable even though the machinery you have is not worn out.

What We've Been Told

The days go fast—But so do Franklin Engines.

2,690 feet in 26½ days at Keighley, Kansas, with a Franklin Valveless.

The Chinese will soon be alarmed.



"I am convinced I could drill to 6,000 with your engine."

MR. STEINBERGER,
Roosevelt County, New Mexico.

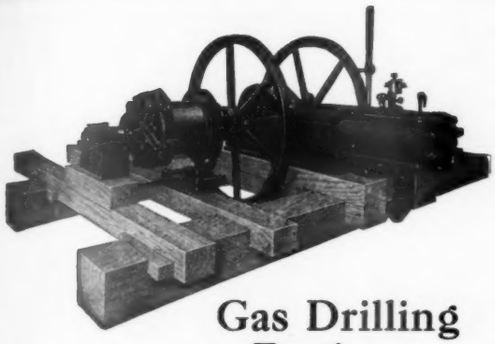
As continuous and unrelenting as a dentist's drill.

"It has not only saved us money on water and oil, but uses so much less water that in case we are drilling in a field where there is water shortage it saves shutting down the well."

SHAWVER & STUTTER,
By Bell.

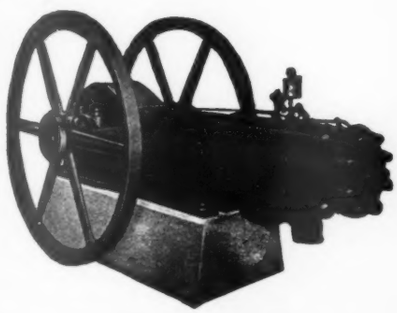
OIL WELL SU
Branches

AND GAS ENGINES



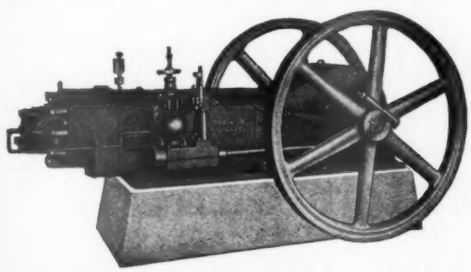
Gas Drilling Engine

This is the Franklin gas drilling engine. 25-30 H.P., 40 H.P., 50 H.P. Each can be mounted on the same block without as much as the change of a bolt. These machines are fast, and especially flexible. They will stand the hardest wear.



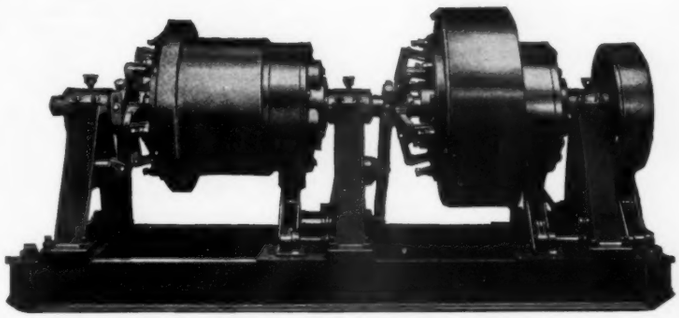
Gas Pumping Engine

Where gas is available, use a Franklin gas pumping engine. It is interchangeable with the Franklin gas drilling engine, using the same block and without changing a single bolt.



Oil Pumping Engine

Franklin Oil Pumping Engines in 30, 40 and 50 horsepower. Can be equipped with reverse or one way clutch. And don't forget the Franklin Construction keeps out sand and grit and eliminates valve grinding.



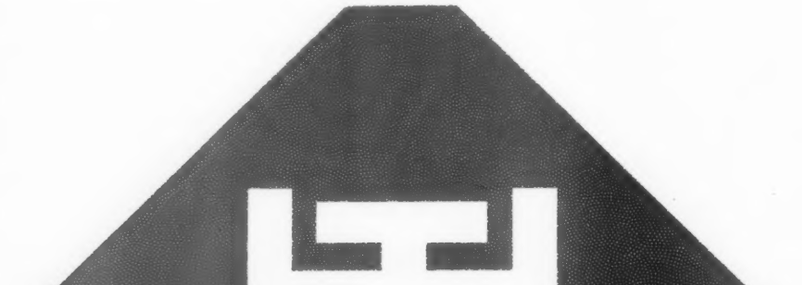
The type 2-SD drilling clutch has two speeds in either direction—speed change made when either idling or running at any speed. Has twin discs of steel lined with the best grade of friction lining. Pulley or sprocket wheel, clutch 100% Roller Bearings. In reversing, the shaft is reversed. Spider, levers, brackets, and all underrigging of steel and entire clutch is mounted on a steel base. 2-SD will pull the largest bailer without faltering.

The B.G. Clutch is on the same principle as the 2-SD. It is lighter—has one speed in forward and reverse. Permits use of larger diameter pulley for lower clutch speed.

Let us send you information about Franklin reverse clutches.

FRANKLIN VALVELESS ENGINE COMPANY
Franklin, Pa.

For Nearly 20 Years-
A HUGHES POLICY



No Hughes Tool Company Product is offered for sale to the industry until actual field performances have proven it to be the most effective tool for the purpose for which it was designed.

Hughes Tools—Sold by Supply Stores Everywhere

HUGHES TOOL COMPANY

Service Plants
Los Angeles, Calif.
Oklahoma City, Okla.

Main Office and Plant
HOUSTON
TEXAS

Export Office
Woolworth Bldg.
New York City

MEN KNOWN IN OILDOM

R. R. Irwin

R. R. Irwin, who was recently elected president of the White Eagle Oil & Refining Company, Kansas City, although one of the younger executives of the oil industry, is widely known among the refining and marketing fraternity of the Mid-Continent and Middle West. For several years he has been a close student of the manufacturing and merchandizing phases of the oil business and his ability along these lines is generally recognized by his associates.

Mr. Irwin started in the refining business with the Chanute Refining Company, Chanute, Kans., in 1910, after spending a short period in the oil fields of southeastern Kansas. From 1910 to 1916 his work with the Chanute company covered practically every phase of petroleum refining.

When the Chanute company was sold he was appointed wholesale sales manager of the Sinclair Refining Company, with headquarters in Chicago. In 1918 he joined the White Eagle Petroleum Company of Wichita, Kans., as vice president and general manager.

When the White Eagle Oil & Refining Company was organized as a consolidation of marketing, refining and crude oil producing companies, Mr. Irwin was elected vice president in charge of refineries. He held that position until January 1 of this year when he was elected president. The company at present has producing properties, three operating refineries with large marketing facilities in several states of the Middle West.

Mr. Irwin is a director of the Western Petroleum Refiners Association.

PERSONAL PARAGRAPHS

H. W. Bell, petroleum engineer, of Chicago, was a recent visitor to Tulsa.

* * *

"Jack" Kennedy Rogers, of Corpus Christi, Tex., has been visiting in San Antonio, Tex.

* * *

Hugh King, Jr., of the Cortez Oil Company, of Tulsa, is spending 10 days in New York.

* * *

F. K. Campbell, Fort Worth, Tex., independent operator, has returned from a trip to North Texas.

* * *

R. E. Hood, formerly of the Marland Oil Company, is now affiliated with Oil Trading Company, New York.

* * *

H. S. Price, managing director of East Crest Oil Company, has returned to Calgary, Alberta, from a trip to Toronto.

D. W. R. Kinney has just returned from Tampico, Mexico, to Tulsa. Mr. Kinney is interested in oil mining methods.

* * *

H. C. Dorworth, Oil City, Pa., solicitor for the Southern Group of Pipe Lines, was a Pittsburgh, Pa., visitor this week.

* * *

Clarke C. Miller has joined the chemical research department of the Standard Oil Company of Indiana, at Wood River, Ill.

* * *

Kenneth Yost, of Abilene, Tex., has been in San Antonio, Tex., looking the section over in view of making it his future home.

* * *

Victor Wenzel, president of the Simplex Oil Company, of Shreveport, La., is in Indianapolis, Ind., on a short business trip.

* * *

Col. T. H. Barton, president of the Lion Oil Refining Company, of El Dorado, Ark., spent several days in Shreveport, La., last week.

* * *

William S. Hovis, representing the American Tank Company, has moved his headquarters from Shreveport, La., to Fort Worth, Tex.

* * *

R. B. Kelly, production engineer, Pure Oil Company, has returned to his Fort Worth, Tex., headquarters following a trip to West Texas.

* * *

W. C. Henning, secretary-treasurer of A. Leschen & Sons Rope Company, of St. Louis, is making a trip through the Mid-Continent oil territory.

* * *

Neil Buckley, in charge of the Tulsa offices of the Carson Petroleum Company, returned the first of the week from a visit to San Antonio, Tex.

* * *

Albert M. Austin, land man for Trees Oil Company, Winfield, Kans., has returned following a business visit to Fort Worth and West Texas.

* * *

W. K. Hughes, chairman of the board of directors of the Continental Supply Company, of St. Louis, was in Tulsa for a few days last week.

* * *

E. A. Landreth, president, Landreth Production Company, Fort Worth, Tex., has returned from a trip to Washington, D. C., and other eastern points.

* * *

David Donoghue, chief geologist, Texas Pacific Coal & Oil Company, has returned to his Fort Worth, Tex., headquarters following a trip to West Texas.

* * *

M. E. Waldron, superintendent of the pipe line department of the Louisiana Oil Refining Corporation, of Shreveport, La., is in Allen, Okla., for several days.

* * *

S. J. Dunmire, manager of the Parkersburg Rig & Reel Company's Shreveport, La., agency, spent the week in Parkersburg, W. Va., attending a sales department conference.

* * *

Joseph R. Andrews, formerly with the Empire Oil & Refining Company, Eldorado, Kans., is now assistant chemist for the Inspector of Naval Material, Bethlehem, Pa.

* * *

J. A. Hayden, superintendent of the Texas Pipe Line Company in the West Texas area, has returned to his Fort Worth headquarters following a trip to the Permian Basin area.

* * *

George Elledge, who has been representing some New York interests in investigating oil possibilities in Porto Rico, has been in Houston, Tex., several weeks visiting his family.

* * *

J. E. Kobernick, vice president and general manager of the Engineering, Research & Equipment Company, Dallas, Tex., has been visiting several points in the eastern states.

* * *

Minal E. Young has returned to Casper, Wyo., after an absence of two months during which he visited New York, Washington, Chicago, and made a trip through the Panama Canal.

J. Spotts McDowell has been appointed director of research of the Harbison-Walker Refractories Company, Pittsburgh, Pa. Mr. McDowell has been connected with the company for 20 years.

* * *

Webb W. Martin, secretary and treasurer of the Spencer Petroleum Company, Chicago, spent several days last week visiting the Tulsa offices of the company and other Mid-Continent points.

* * *

A. G. Dana, vice president and general manager, O. E. Garretson, secretary, and C. G. McCoy, superintendent of operations of the Prairie Oil & Gas Company of Wyoming, were in Casper recently.

* * *

S. W. Blount, Jr., for more than five years oil and gas supervisor in Southwest Texas for the Texas Railroad Commission, has resigned, to accept a position with the Luling Oil & Gas Company.

* * *

H. A. Stewart, chief geologist, and Frank Leonard, petroleum engineer for the Texas Production Company in the Rocky Mountain region, with offices in Denver, Colo., recently visited Casper, Wyo.

* * *

M. H. Lowrance, assistant to the manager of the Sinclair Oil & Gas Company's West Texas and New Mexico land department, has returned to his Fort Worth headquarters following a business trip to Tulsa.

* * *

V. S. Swisher, Oil City, Pa., secretary of the Southern Group of Pipe Lines, attended a directors' meeting of the Southwest Pennsylvania Pipe Line Company, held at the company's offices in Pittsburgh, Pa.

* * *

H. DeW. Whittlesey, vice president and managing director of the Sherwin-Williams Paint Company, of Cleveland, Ohio, was in Tulsa last week accompanied by W. P. Clark, manager of the Kansas City division of the company.

* * *

J. C. Templeton is engaged in a survey by torsion balance of the Northern Plains, between El Mene Field of Venezuela and the sea, an area of some 200 square miles. Mr. Templeton will subsequently commence a survey of the Orinoco Delta.

* * *

Dr. Arthur Wade, well-known British geologist, has sailed for New York to spend some time on professional duties in the United States, and then proceed to Colombia, Venezuela, and Ecuador on oil field work. He may get as far as the Argentine.

* * *

Robert W. Ducker, for the past year a member of the engineering department of the Oklahoma Natural Gas Corporation, has resigned to become a member of the engineering department of the Creole Syndicate. He sailed last week for Venezuela.

* * *

M. E. Wilson, superintendent of production for the Louisiana Oil Refining Corporation, of Shreveport, La., has moved to El Dorado, Ark., to become vice president in charge of production, pipe line and geological departments for the Lion Oil Refining Company.

* * *

W. L. Walker, who for the past three years has been chief geologist for the Empire companies, is to leave for California on March 15. He will be in charge of special work for the Cities Service there. J. M. Nisbet, who has been Empire's assistant geologist for the past 10 years, will succeed Mr. Walker.

* * *

H. F. Howard, of the Ranger, Tex., office of the Prairie Oil & Gas Company, has been transferred to Tulsa to take the position made vacant through the death of J. J. Brazill. Thomas F. Hannigan, of the Tulsa office of the company, has been transferred to Ranger, to fill the position made vacant by Mr. Howard's transfer.

* * *

Thomas J. Taggart, former United States senator from Indiana, whose death occurred at his home in Indianapolis on March 6, was interested in North Louisiana oil properties, being an associate of Victor Wenzel in the development of the Shift Tail Bayou Pool south of Pine Island and in the Simplex Oil Company's activities in Caddo.

Natural Gas Developments

WELL KNOWN GAS MAN MAKES NEW CONNECTION

William J. Hinchey has resigned his position of general superintendent of the Gas Service Co. in Kansas City, Mo., to become one of the officials of the Missouri-Kansas Pipe Line Co., which has its headquarters in Kansas City. Mr. Hinchey is well known throughout the gas fraternity in all sections of the United States, having worked in all branches of the industry.

With the Missouri-Kansas Pipe Line Co. Mr. Hinchey will be vice president in charge of new properties. This company is rapidly developing its holdings in Missouri, Kansas, Oklahoma and Kentucky.

Mr. Hinchey has been in the gas business for more than 28 years, beginning with the United Natural Gas Co. at Bradford, Pa. In 1908 Mr. Hinchey joined the ranks of the Kansas Natural Gas Co., Kansas City. In 1923 he was made general superintendent of the Union Public Service Co., which was later purchased by the Henry L. Doherty Co. and operated with others under the management of the Gas Service Co.

William J. Hinchey

Charles H. Koinm has been appointed to succeed Mr. Hinchey as superintendent of the Gas Service Co.

Mr. Koinm is a native of Texas. His first oil field work was at Humble. After this he worked at several jobs in the field and on pipe line gangs, roustabout crews, drilling crews, as oiler, fireman, and finally rig builder, throughout Texas and Louisiana. At the age of 19 he decided he should have some additional education, and entered the A. and M. College of Texas. Shortly before he completed his last year his professor of electrical engineering informed him that the Henry L. Doherty Co. would take two graduates for the Doherty Junior Engineering course, which he entered at Denver. After two years in Denver, Mr. Koinm went to the Canadian properties, where purification work was being done. He then was sent to the New York office, and from Tonawanda as superintendent of the artificial gas plant. Later Mr. Koinm went to Toledo, where he was connected with the industrial heating department, working on experiments on the gasification of coals and cracking of oils.

In 1920, Mr. Koinm came to the Mid-Continent as engineer in connection with the installation of the three-part rate, and the mitigation of leakage.

DISTRIBUTION OF MIXED GAS CONSIDERED AS LOGICAL STEP

By H. C. Blackwell*
President Union Gas & Electric Co., Cincinnati, Ohio

Although a vast majority of the gas taken from the various fields has been delivered and used just as it came from the well, except that it was likely treated for the extraction of gasoline, we are hearing more and more about the desirability of distributing a mixed gas having a lower heating value than that of straight natural gas.

A number of new gas fields have been made available during the past two or three years and long transmission lines have either been completed or are in course of construction. Thus, there will be added many thousands of people to learn and to appreciate the value and convenience of this great natural resource that is being taken in such tremendous volumes from where nature has so carefully stored it.

Those districts where natural gas was once plentiful, but now exhausted, are the ones where its value is most appreciated and where its return would be most welcome, so it behooves us, who have a supply, to protect and conserve it and to make use of the gas to best advantage.

In some manufacturing processes there results a by-product in the shape of gas and, depending upon the particular industry, the gas may contain approximately 600 B.t.u. per cubic foot, or for another industry the by-product may have 100 B.t.u. As a matter of economy and conservation, these by-product gases should be made use of and in districts where natural gas is available, can readily be mixed with the natural gas in such proportions as will produce a gas highly desirable for industrial and domestic purposes and at the same time not only make use of a by-product but conserve the supply of a natural resource.

In communities where natural gas is distributed, quite general use is made of it for house heating purposes and as a result heavy demands are experienced in cold weather when pumping plants, together with transmission pipe lines are taxed to deliver the requirements and at times, in fact, have failed to meet the demands with consequent criticism on the part of the user and the loss of that part of the business unwilling to continue with a supply that cannot be depended upon just at a time when it is most needed. Poor service is bound to provoke trouble for a public utility, but on the other hand good service is not always fully appreciated.

Peak Load

Duplicate pipe lines and peak load pumping stations are expensive to install and to maintain and are so looked upon, especially when they might be considered as being held in reserve to furnish excessive demand for the very few days of unusually low temperature, perhaps not more than 10 days out of the year.

Gas holders are likewise expensive, particularly those of large capcity and it is only the large holder that is of any value

(Continued on Page 121)

*Before Ohio Gas and Oil Men's Convention, Columbus, Ohio.

UNITED CARBON'S PART IN GAS LINE TO ST. LOUIS

In the annual report to stockholders, Oscar Nelson, president of the United Carbon Co., states the company and its subsidiaries invested $1,979,467 in additions to plants and equipment and acquisition of new leases and drilling new wells during 1928. Properties of Louisiana Gas Products Corp. of Monroe, La., and Eastern Carbon Black Co. of West Virginia, including all lands, leases, wells, good will and trade-marks, were acquired in exchange for preferred and common shares of United Carbon Co.

Directors authorized sale of certain gas and oil leases and wells, in Kentucky for $960,000, of which $210,000 was received in 1928, balance to be paid in monthly installments. Only that portion of the profit to be realized from this transaction which was represented by cash received was included in 1928 income.

Additional contracts were entered into during 1928 between the company and Phillips Petroleum Co. for purchase by Phillips of large supplies of natural gas. Plants have been completed or are under construction at Alexander, Norrick, Stinnett, Sanford, McIlroy and Rock Creek, Tex.

United Carbon Co. during 1928 became a member of a syndicate formed to lay a pipe line from the Louisiana gas fields to St. Louis, Mo., and for transmission and sale of natural gas in the St. Louis district, the report continues. The other members of the syndicate are Standard Oil Co. of New Jersey, Columbian Carbon Co., Electric Bond & Share Co., Moody Seagraves Co. and Palmer Corp. of Louisiana. The syndicate agreements provide that United Carbon Co. shall contribute its pro rata share of the cost of this pipe line by cash payments not to exceed $1,350,000 and that its portion of the total quantity of gas to be supplied shall be 17 per cent. It is estimated that the daily maximum quantity of gas which company will deliver under this arrangement will be 22,000,000 cubic feet.

Bonded indebtedness was reduced during the year to $848,000 from $1,150,000, a decrease of $302,000. Only other cash obligation at the close of the year was $300,000 notes payable, representing money borrowed for plant expansion, and the ordinary current liabilities, which the report says have been paid since December 31, 1928.

SURVEYORS NOW BUSY ON BIRMINGHAM LINE

RAYVILLE, La., Mar. 9.—Surveying crews started out of Rayville routing the largest gas line that has yet left the Richland gas field, a 24-inch line from a few miles south of Rayville to Birmingham, Ala. It is proposed to have smaller lines leave the main line and Chattanooga and Atlanta are mentioned as possible users of Richland gas. The main line will have daily capacity of 95,000,000 feet.

The line will be owned by the Southern Natural Gas Corp. and P. M. Biddison and E. C. McGee are looking after this end of the line.

Several car loads of large gas line pipe have been unloaded at Start, about 5 miles west of Rayville, to be used in running feeder gas lines into the new carbon plant which will be erected at once by the Century Carbon Co. On account of weather, there has been some delay in laying out the plant, but the engineers will soon be through with their work and the construction of the carbon plant will be begun. It will be followed immediately by the construction of a gasoline extraction plant.

MICHIGAN MAY PREVENT EXPORTATION OF ITS GAS

MUSKEGON, Mich., Mar. 9.—Michigan does not propose to allow its natural gas to be piped out of the State, according to the gas pipe line bill just passed by the state senate.

Section 2 expressly provides "that no corporation, association or person shall be granted the right of condemnation by eminent domain or the right to use the highways of this State to lay or construct, maintain or operate a pipe line or lines for the transmission or transportation of natural gas unless and except such pipe line or lines are to be used solely and exclusively for the transmission, transportation and distribution of natural gas within the State of Michigan."

Daily consumption of natural gas from the Muskegon Field through the Continental Motors Corp.'s private line will soon be about 8,000,000 feet with the addition of the Brunswick-Balke Collender Co. plant as a new customer. Gas has been turned on the Brunswick plant and consumption is expected to reach about 1,500,000 cubic feet a day.

Two additional gas wells, one a new 10,000,000-foot producer in the Dundee formation and the other a gasser which came in with the same amount of gas but has since started flowing oil, have been added to the list from which gas has been purchased by the Continental corporation.

The Muskegon Traction & Lighting Co. has tied in another new gasser on the Muskegon River flats with a like open flow capacity from the lower Traverse. This is the Lima Oil Corp.'s No. 2 M. Figge, SE NW, Section 9-10-16. It has a rock pressure of 800 pounds at 1,870 feet.

Residents of Scottville, about half way between the Mason County gas wells and Ludington on the route to be followed by the Central Michigan Pipe Line Co.'s proposed natural gas line, will vote on a 20-year franchise at the spring election in April.

The two wells from which the gas will be piped to Scottville, Ludington and possibly Manistee are owned by C. A. Welsh and W. C. Taggert, now operating as the Peerless Oil Co. in development in Mason County.

SAN ANTONIO LINE SURVEY

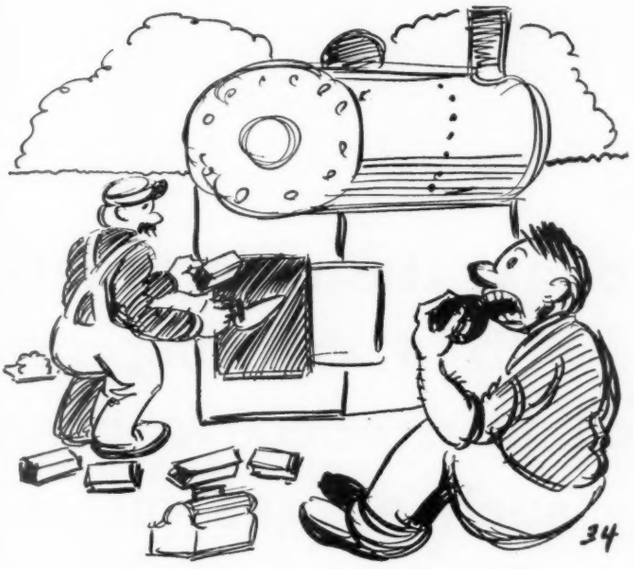
HOUSTON, Tex., Mar. 9.—Engineers of the Houston Gulf Gas Co., subsidiary of the United Gas Co., has started a survey for a 16-inch high pressure line from Refugio to San Antonio. The company already has received franchises to supply Karnes City, Kenedy, Floresville, Poth, Falls City, Yorktown, Nordheim and Runge. Construction of distributing systems in these towns will begin within 30 days and the main line is expected to be in operation by June 30. According to present plans of the company, construction will not be awarded by contract but will be done by engineering department of the United Gas Co.

BUYS LITTLE ROCK COMPANY

Announcement was made of the acquisition by the Arkansas Natural Gas Corp., a Cities Service subsidiary, of control of the Little Rock Gas & Fuel Co. The Little Rock property comprises the entire natural gas distributing system in the Arkansas city.

The Arkansas Natural Gas Corp. recently completed a pipe line from its Johnson County acreage to supplement its former line which was serving Little Rock. The additional line, it is said, assures a sufficient supply of gas to meet the growing requirements of the Arkansas city.

IT HAS BEEN SAID:



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Today, the unfortunate refiner with a cracking process limited to a selective charging stock such as gas oil, which process degrades half of that gas oil into fuel oil, is losing at the bung-hole most, if not all, that he makes at the spigot

His crude oil distilling operation to obtain gas oil for his cracking process produces more fuel oil than gas oil Then, when he cracks his gas oil he degrades half of it by producing still more fuel oil, until he is

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EARLIER PERIODS OF OVERPRODUCTION

(Continued from Page 34)

in the latter area were held almost entirely by companies of the stable type rather than of the promotion type. As prices toppled under the rapidly increasing supply from the Los Angeles Basin, wells in the valley were shut in. In December, 1922, the amount of production shut in by valley producers was placed at 60,000 bbls. daily. In addition about 20,000 bbls. had been shut in in the coastal area, mainly in the older pools. While the yield of California in 1921 was 112,600,000 bbls, in 1923, despite all of the efforts of the more stable operators to restrict work, it reached 262,876,000 bbls.

Increase in Refineries

Refining facilities designed to operate on 10 to 20 degree oil proved wholly incapable of handling this flood of 20 to 35 degree crude. The location of the pools adjacent to markets and shipping centers led to the immediate construction of refineries. However, the rate of increase of production was far in excess of the ability to provide refining capacity. Moreover, neither the crude nor its products were needed in California. Finally in the fall of 1922, the price of crude had declined to such a point that it became possible to ship oil through the Panama Canal and sell it along the Atlantic Coast. The initiation of this movement was aided by the low tanker rates resulting from the decline of Mexican production. Early in 1923 the movement of oil through the Panama Canal exceeded 1,000,000 bbls. a month. In May it was five times that amount.

The oil was not like the Mexican crude, whose value was mainly in its use as a fuel, but contained up to 30 per cent of gasoline. During the spring of 1923, Oklahoma prices were slashed to meet the California quotations and prevent the piling up of stocks in the Mid-Continent. In May, Powell, a second and greater edition of Mexia was discovered. Remembering the high initial yields and rapid declines of the wells at Mexia, producers did their utmost to rush completions in this new pool. The pipe lines constructed to handle the Mexia production were available to speed removal. In November, the pool reached a peak of 354,893 bbls. a day. Even the ideal of the conservative producer, Salt Creek, seemed to be copying the style of these rapidly developed pools. A large number of leases located at its southern end had been sold at auction by the government in 1921 and were now in their flush yield. In September, the pool produced 132,000 bbls. a day.

Down to a Dollar

The price of average grade Mid-Continent crude dropped to $1 a barrel. Efforts to restrict drilling and production were made in all of the flush pools, but their effects were negligible. The Prairie Oil & Gas Co. did not make the final cut in prices until late in the year, attempting, together with other large purchasers, to maintain the price structure during the summer by proration of runs. At the same time the larger refiners were attempting to hold gasoline prices to a level sufficiently high to permit them to market earlier purchases of crude made at high prices. However, proration of crude runs led many producers to sell their production to local refiners at prices below the posted price of the larger purchasers. These refiners were in turn able to sell their gasoline under the prices asked by the larger refiners. The excess of gasoline finally caused a collapse of the gasoline price structure, which brought about the crude price cuts in the fall.

During 1923, some curtailment was effected by a temporary shutdown at Burbank and by decreasing drilling at Tonkawa. However, the effects of these local movements proved to be of little help and were not maintained by the operators. Except in the valley field of California, curtailment did not seem to be favored. The production of the country as a whole rose 500,000 bbls. a day to maintain an average of 2,000,000 bbls. daily for 1923. Stocks of oil rose 87,000,000 bbls. during the same period. Of this increase, 69,000,000 bbls. were added to storage east of California and more than 50,000,000 bbls. were placed in storage in the Mid-Continent. While both Mid-Continent and California had been guilty of producing oil in excess of their market needs, the latter had been able to dispose of much of its product by cutting prices to the limit (in the fall 27 degree oil in California was quoted at 68 cents) and invading the markets along the Atlantic Seaboard. The great purchasing organizations of the Mid-Continent had attempted to maintain prices until the period of overproduction should pass. At the close of 1923 they held over 100,000,000 bbls. more than they had at the beginning of 1922 and were correspondingly less able to handle any oil that might be thrown on the market by new discoveries.

Los Angeles Basin

The expected decline in production in California did come in 1924. The new discoveries in the Los Angeles Basin, Torrance and Dominguez, were not comparable in size with the pools that had caused the overproduction of 1923. Prices rose sufficiently to warrant the opening up of the shutin production of the valley field. Shipments of crude to the Atlantic Coast began to decline, but the recently constructed refineries in California found that it was profitable to ship tankers loaded with gasoline to the eastern markets. In the winter of 1924 Mid-Continent 33-35.9 degree gravity crude was raised in price until it finally reached $1.75 a barrel. This was due to the evidence of a decline in California and the expectation of decreased production throughout the Mid-Continent. However, Burbank failed to decline and Tonkawa rose to a new peak with the discovery of the deep Wilcox horizon. Other pools added their yields to bring the total for Oklahoma above that of 1923. Smackover maintained a high average yield throughout the year. The production of Texas rose in response to the discovery of two more pools along the Mexia-Luling fault zone, Richland and Wortham. Both proved to be smaller than the previous discoveries, but the latter threatened for a time to surpass its predecessors and brought a reduction in Mid-Continent prices. The production for the whole country was materially less in 1924 than during the previous year but the decline had centered mainly in California. The Mid-Continent section had not been able to reduce stocks. In fact, approximately 10,000,000 bbls. were added to storage in that area.

Wortham and Smackover

Except for the rapid development of the deep sand production of Smackover, the year of 1925 was an uneventful one in the Mid-Continent. The actual peak of Wortham did not come until January, 1925, but its limitations were known before the year began. Garber produced a large amount of oil from the Wilcox horizon. However, like other pools yielding oil from that horizon at the same time, its production declined rapidly. The discovery of several important pools in Greenwood County, Kansas, increased the yield of that State. However, shipments in the northern half of the Mid-Continent area were in excess of production and storage was being drawn on. Prices in the Gulf Coast area and for fuel oil generally were materially weakened by the rapid development of the deep heavy oil horizon at Smackover. Smackover attained a peak of 390,000 bbls. in May and produced a total of 74,000,000 bbls. during the year. Fuel oil prices fell to a point that made the shipment of crude oil from California unprofitable. While California refiners continued to ship gasoline, in fact, increased their shipments of this product to the Atlantic Coast, they had no outlet for the increasing amounts of fuel oil that were being produced as a byproduct. Thus, when the Inglewood Pool, a producer of heavy oil, was developed in the Los Angeles Basin, fuel oil became a drug on the market. The increase in stocks during the year, amounting to approximately 30,000,000 bbls., consisted almost entirely of additions to heavy crude and fuel oil storage in California.

The Panhandle

Except for this condition in California, the oil industry at the opening of 1926 appeared to be free of major problems. The prices of the several grades produced in the Mid-Continent were raised early in the year, and again in May, the posted price for 33-35.9 degree gravity oil going to $2.05, its highest price since early in 1921. Oil was steadily leaving storage. The deep sand development at Spindletop brought a steady increase in production with each successive month. In December the yield of the pool reached 96,500 bbls. daily. The development of the Panhandle district brought a daily yield of 167,600 bbls. early in November but lack of transportation facilities prevented its oil from swamping the market. No other pools of major size were in view in the early summer. However, wildcatting was active throughout all of western Texas and the Seminole uplift in Oklahoma was the center of a deep drilling campaign to discover a southward extension of the Wilcox sand area. Most important of all, stocks were only slightly lower than they had been at the beginning of the year and were substantially higher than they had been in any previous year. The oil industry had no known reserves to fall back on other than those above ground; its only method of meeting the anticipated demand was that of drilling exploratory wells until new pools were discovered. If too many were discovered, the troubles of overproduction might be expected to appear almost immediately.

Seminole

Early in March of 1926, the Indian Territory Illuminating Oil Co. completed the first well in the Seminole territory, an 1,100 bbl. producer in the Hunton lime. As this horizon had been characterized by wells of short life in other areas, no special attention was paid to the discovery. A near-by test by the Amerada corporation discovered a small amount of oil in the Wilcox and led to further testing. In July three wells were completed in that horizon. All were of the gusher type and partially proved a substantial area between them. By the first of October, 5 wells had been completed with a yield of more than 20,000 bbls. daily. At that time 157 wells were drilling in Township 9-6, the location of the discovery. No less than 60 of these wells were below 3,000 feet. Early in October, the Prairie Oil & Gas Co. found Wilcox production in 33-10-6, thereby opening up the Searight Pool.

A month later the production of the area had passed 100,000 bbls. a day. Most of the oil was being handled by pipe lines that had been extended into the area. Some was going out by tank car and a little was being stored on the ground. As wells were being completed rapidly, the producers at Seminole met to organize to handle the expected increase. Ray M. Collins was appointed as umpire to be assisted by a committee of five. The producers agreed not to drill in any wells other than offsets of producing wells and certain wells owned by the Prairie and the Carter companies until November 25. Wilcox sand wells were to be prorated to pipe line capacity.

Despite the restrictions resulting from this plan, producers and purchasing companies started construction of tanks on a large scale. Crude oil prices were reduced. Early in November, the Gypsy Oil Co. completed the discovery well in the Earlsboro Pool. However, by the end of November, the action of several wells in going dead when back pressures were applied to them indicated that the gas pressure in the Wilcox horizon was greatly depleted. As pipe lines were being added to those already built and as more than 1,600,000 bbls. of tankage were either completed or under construction, the producers terminated the shut-down agreement on November 30. Early in December, the Indian Territory Illuminating Oil Co. reported the discovery of Hunton lime production in 15-8-6, thus introducing the Bowlegs Pool. Despite the threats contained in the discoveries of Earlsboro and Bowlegs, there was no expectation of overproduction, pipe line capacity by the middle of December having passed 200,000 bbls. and begun to take oil from storage.

During October and November, attempts to use the gas lift had been made on several leases. The success of these efforts led to its use throughout the whole of the Seminole Pool. The response was felt immediately. By the middle of February, the production of Seminole Pool had reached 200,000 bbls. a day. The other pools were contributing an additional 50,000 bbls. There was every reason to believe that production would increase even more. The capacity of pipe lines and storage was being surpassed and oil was going on the ground. Prices were cut again. The demand for a shut-down was revived and on February 24 a shut-down agreement was ratified by the producers. The producers agreed not to drill in more than one well to each 40-acre tract in the Bowlegs and Earlsboro areas. They further agreed to build storage to handle at least one-third of the production from their own leases. The umpire, Mr. Collins, was given authority to reduce production by 10 per cent if oil was escaping to the ground.

However, the agreement placed no restriction on the use of the gas lift. In addition the bulk of the drilling wells were in the Seminole Pool area and not subject to restriction. Two more price cuts were made, bringing the price for this high-grade oil down to $1.38 a barrel in March. It had been $2.69 in November. The Turman Oil Co., owner of two leases, appealed to the State Corporation Commission for relief, claiming that the use of the gas lift had resulted in production of oil above the pipe line capacity, in dissipation of the pressure, and in waste. It asked for the removal of the gas lift system. The Commission called a meeting in which it was brought out that the Turman company had only a limited amount of storage and had no organized program for the construction of more. Representatives of the leading producers were present and testified that conditions at Seminole made the use of the gas lift imperative. No action was taken. Production continued to rise. Seminole Pool proper was beginning to decline but the production of Earlsboro and Bowlegs was increasing rapidly. By the first of May the district was producing at the rate of 350,000 bbls. daily.

Beginning of Co-operation

A conference was called by W. C. Teagle at New York on May 12. A temporary shut-down was arranged and a meeting to consider final action called for May 25. A comprehensive program was worked out and adopted after much debate. The completion of all drilling wells was permitted, but their rate of production after completion was to be limited wherever possible. In some sections production was limited to 2,000 bbls. for each 40-acre tract, in others to 1,000 bbls., and in all outside locations to 100 bbls. a day. During the first part of June it appeared that the shut-down would succeed. A test well drilled by the Gypsy Oil Co. in 33-8-6 was shut down to 75 bbls. a day. Production from the area as a whole appeared to have reached a peak. However, during the last half of the month the air lift was applied at Bowlegs on a large scale and a series of gusher wells were completed at Earlsboro. Production rose above 400,000 bbls. a day. Late in June the Indian Territory Illuminating Oil Co. opened up Little River with a gusher well.

As the production of this well rose to 13,800 bbls. a day, the impossibility of expecting the discoverer to shut it down to 100 bbls. daily became apparent. Finally an agreement was made by which the company was permitted to produce to capacity for 100 days. Twelve other wells were permitted to start drilling. At the close of the 100-day period all were to be shut down to 100 bbls. Production for the area as a whole had reached 492,000 bbls. a day by July 20. The failure of the New York agreement was generally admitted. It had been unable to meet the Little River situation, it had failed to prevent the use of air and shooting, and had not caused the shutting down of any drilling wells in the center of producing pools. A meeting of the producers was called in Tulsa.

(Continued on Page 114)

G-R Bentube Sections

The G-R Bentube Section is fully protected by U. S. Patent No. 1,617,083

MAINTAIN rated capacity even with poor quality cooling water because of the automatic scale-shedding feature which prevents scale from building up to a thickness which would reduce the cooling effect below that for which the sections are designed.

G-R Bentube Sections are standard and interchangeable, may be set up in stacks for flexible capacity, are built of Admiralty metal tubes and cast iron headers for long life, and have high salvage value because of the ease with which they may be dismantled, transported and re-erected as required by changes in plant layout.

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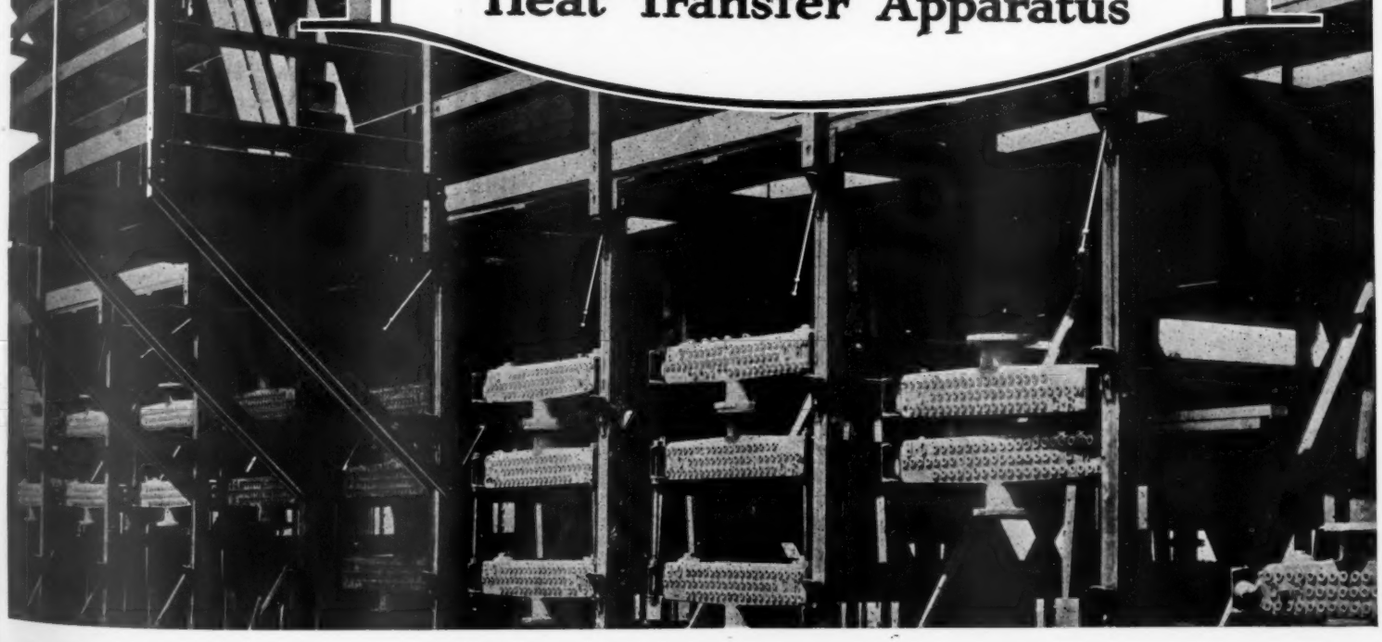

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The three sizes of Ironcase Metric Meters (80-B, 250-B and 500-B) which were built to give improved service over their predecessors (60-B, 100-B and 200-B) have now been proved by five years of hard service to be every bit as good as promised.

In building these modern Ironcase Meters the dominating motive was to secure an increase in capacity and a decrease in weight. This was accomplished by changing the shape and size of the case.

Otherwise the improved Ironcase sizes retain all the fine features of the older types which had given satisfactory service for 12 years prior to the advent of the modern Ironcase. Additional important refinements, however, were introduced: *Alemite (non-stop) lubrication; Timken Bearings; Longer Valve Links; Light Weight Valve Covers; Greater Resistance to Valve Wear; Diaphragm Drains, and Corrosion Proof Cases.*

These features, plus added capacity and decreased weight, give the meters longer life in service and much better operating qualities. If today's Ironcase is an experiment, it is a mighty successful experiment that every user of these wonder measuring instruments will profit by.

CELEBRATES *it's 5th birthday by getting a brand new feature*

Every other feature having proved its ability and high merit for Ironcase Service, there is only one improvement we can contribute to these modern meters at the close of their 5th year. This new feature is a *special Metric formula varnish* that is applied to the interior of all castings to prevent corrosion.

After extensive proof we know that corrosion is conquered by this coating insofar as it could affect Ironcase accuracy.

The desirability of this new feature is of greatest significance where measurement involves handling gas with sulphur content. However, all Ironcase Meter cases will have this anticorrosion protection without regard to conditions of service for which they are intended.

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of the American Meter Company-Inc
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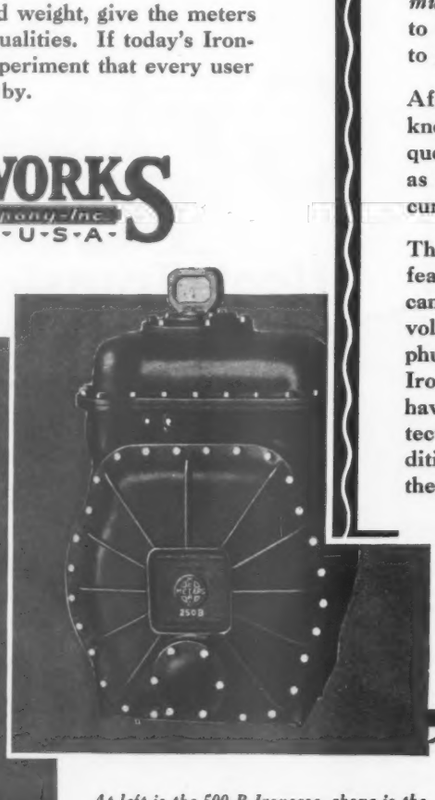


At left is the 500-B Ironcase, above is the 250-B Ironcase—both in their actual relative proportions as to size. Decrease in size and increase in capacity is a remarkable feature of the newer Ironcase.

ROCKY MOUNTAIN AREA

(Continued from Page 51)

tion 2-29-19, Rattlesnake Dome, is bottomed at 6,500 feet and running the 6¼-inch. The Angel Peak Oil Co.'s No. 1 Garland, NE NE, Section 11-28-11, in the Kutz Canon district, is drilling below 1,850 feet in the upper Picture Cliff and the gas is increasing. At last reports it was making approximately 2,500,000 feet a day. The sand, estimated to be 190 feet thick, was topped at 1,820 feet. The editor of the Farmington Times-Hustler visited the well the past week and in describing what he saw, said:

"When we arrived at the well plans were under way for the opening of the cock that controlled the gas flow. In a short time the gas was turned loose with a deafening noise, a noise that you did not care to approach without having the ear drums protected by cotton or some other method. A blue stream of gas went up for several feet when the cap was removed and a coating of frost gathered on the pipe line through which it was passing. In making a test with the hands it was found that the gas flow was extremely cold but no instruments were at hand to test its temperature. This frosting of pipes occurs at the Rattlesnake structure where the cold gas is used for refrigeration purposes in the camp homes, but does not occur anywhere else in this field to our knowledge.

"Shortly after the gas had been turned on it was discovered the well was spraying frozen lumps of gasoline or light oil. This continued for some time, some of the small particles being thrown for some distance from the derrick. A little later it was noticed that a light oil almost gasoline, was being carried up with the gas. This continued even after the drill had been started and at the time we left the well was spraying up as far as the roof of the building enclosing the well. The flow of gas increased in a manner that was discernible to the eye as the drill went down. We were there two or three hours after the drill had been started. A test a short time before we left showed approximately 2,000,000 feet of gas escaping. We are informed this has since increased about 500,000 feet."

The well described is about 31 feet higher structurally than the best well in the area and extends the proven area about a mile to the southwest. The other wells in the area include A. Johnson, trustee's No. 1 Viles, SW Section 34-29-11, sand at 1,749-1,934 feet, estimated at 2,000,000 feet, and the Senate-Congress-National interests' No. 1 Garland, SW cor. NE, Section 34-29-11. The latter supplies gas for fuel to the Angel Peak well, and the line goes up a hill. A gas trap takes off considerable gasoline where the line begins the ascent.

UTAH

Interest in Utah operations is centered at present in the Continental Oil Co.'s No. 1, NW SW, Section 22-43-22, on the Boundary Butte Dome, in San Juan County, in the southeastern corner of the State. This well is making between 5,000,000 and 6,000,000 feet of gas spraying some distillate while drilling is in progress at 4,555 feet. Some trouble is being experienced in keeping water in the hole so that it can be underreamed and the 5⅜-inch lowered. The casing is at 4,520 feet. This well showed for about 25 bbls. a day in the Shinarump conglomerate at 1,590 feet several years ago, but it was held up for a long time at that depth by litigation with the Government. The permits were issued under the mineral leasing act of 1920, though the land is within a proclamation strip of the Navajo Indian Reservation. The situation was complicated and Congress passed relief legislation which permitted the resumption of drilling. Midwest Oil Co. interests and others are identified with the operation with the Continental company in charge of the drilling. The gas now coming from the well is far down in the Pennsylvanian, the hole having gone through about 2,000 feet of lime. It then cut some shale and went back into lime when the gas made its appearance at 4,400 feet. The intentions are to drill the hole a little deeper to learn what may develop.

Cane Creek Dome

The Colorado River was free of ice the past week for the first time in several weeks and this enabled the resumption of drilling on the Utah Southern Oil Co.'s No. 1-A J. L. Shaffer, on the Cane Creek Dome. At last reports it was drilling at 2,738 feet in salt and shale. The same company's No. 1 Farnsworth, SE cor., Section 29-4s-1e, on the Pleasant Valley Dome in Uintah County, is shut down at 3,000 feet waiting for orders. This well was started last summer on a block of 35,000 acres to test the Green River formation of Tertiary age. It has reached the contract depth and it will be decided shortly whether it will be drilled deeper. It has been in hard gray limy shale for the past 500 feet. The Western Venture Corp.'s No. 1 Krumveida, SE NW, Section 6-5s-21e, Vernal monocline in Uintah County, is still shut down at 1,291 feet where it was in a sand topped at 1,265 feet and showing a little saturation through a column of water. The 6¼-inch was cemented at 1,264 feet but failed to make a shutoff and the plans are to run a string of 4¾-inch as soon as weather conditions are such that it can be trucked in from Craig, Colo. The Crescent Oil Syndicate's No. 1 McCarthy, SW cor., Section 27-21-19, in the Crescent area in Grand County, is setting up a No. 30 Star rig to take the place of a smaller outfit. The 10-inch is on bottom at 1,602 feet supposedly on top of a sand. It was reported making 2,000,000 feet of gas from the Mowry shale last November when operations were suspended. Since then there has been a change in the management reported. The well was started by the Western States Development Co., and then the Intermountain Venture Co. was formed to complete it. Last January the Crescent Syndicate took it over. The Navajo Petroleum Co.'s No. 1 State, SW SE, Section 2-20-21, Grand County, which has been shut down on top of the objective sand at 2,845 feet since last December on account of cold weather, is preparing to resume. The Phillips Petroleum Co.'s No. 1 Shick, C NE, Section 16-27-16, Barrier Creek structure in Wayne County, has cleaned up its fishing job and is drilling ahead at 3,725 feet.

COLORADO

Though the season most favorable for starting new operations in Colorado still is several weeks in the future there already are signs of increasing activity. Several new structural tests are to be drilled in northern Moffat County in the Vermillion Creek district, south of the Wyoming line, where considerable activity already has been under way for some time and extends over into Wyoming. One of the wells to be drilled will be put down by the Texas Production Co. on the Dr. W. C. K. Berlin permit in the SW NW, Section 19-12n-100, on the Bartram Dome. It is expected that moving in will begin just as soon as the roads are passable. The location of this well is almost 3 miles west of the Mountain Fuel Supply Co.'s No. 1 State-Reiter-Foster, on Section 16-12-100, on the Hiawatha Dome. Like most of the wildcats in that area it will be a test of Tertiary horizons. Another operation in the same territory for which a rig is reported moving to location is on the Powder Wash anticline in Moffat County, approximately 12 to 15 miles east of the Hiawatha Dome. Location has not yet been announced but the Ohio Oil Co. is the firm which is reported moving in the rig, 14 trucks having arrived at the Hiawatha camp after bucking the snow for several days. This anticline is shown on a map accompanying Bulletin 751-G of the United States Geological Survey, by Julian D. Sears, on that region published in 1924. This, also, is a Tertiary test. The approximate location of this anticline is in the southern tier of sections in Township 12n, Ranges 97w and 98w, as shown on the Sears map and runs due east and west for approximately 10 miles. This general area is attracting considerable attention at this time. There are several big gas wells on the Hiawatha Dome in both Colorado and Wyoming, the structure straddling the line. One well drilling on the Colorado side which is now below the gas horizons and which has had several good shows of oil and gas in formations not heretofore tested is the Mountain Fuel Supply Co.'s No. 1 State-Reiter-Foster, SE cor., Section 16-12n-100, which is fishing at 3,585 feet. The hole is very small and plans are understood to be to move in a rotary. This is one of the operations of the Ohio Oil Co. turned over to the Mountain Fuel Supply Co. which will be in charge of gas production for the new pipe line into Utah. Other tests include the Mountain Fuel Supply Co.'s No. 1 Humphreys, SW cor. NE, Section 2-12-101, on the Canon Creek Dome, on the Wyoming side, which is drilling at 2,450 feet. Another is the same company's No. 1 Tucker, C NE SE, Section 18-13-99, in Sweetwater County, Wyoming, recently taken over from the Prairie Oil & Gas Co., which was shut down for the winter at 2,480 feet when it gave indications of coming in as a big gasser. Another on the Wyoming side is the Vermillion Oil Syndicate's No. 1, SW cor., Section 16-12-99, which is shut down for the winter at below 700 feet.

Yuma County

Another area where considerable leasing is reported in progress is in Yuma County, on the eastern side of Colorado. The Indian Territory Illuminating Oil Co. and the Osage Development Co. are reported jointly leasing up several blocks within 10 miles of the town of Yuma. The companies are reported offering 35 cents per acre for the first year and 50 cents per year per acre rentals, the leases running for 10 years and putting three-fourths interest in the name of the Indian Territory company and one-fourth in the name of the Osage company. These same firms were reported several months ago blocking up leases farther to the west in Morgan County, but no immediate drilling plans were announced. These activities, with the filing of leases by the Marland Production Co. on land in the vicinity of Lamar, in Prowers County, and other leasing in eastern and southeastern Colorado indicates a considerable wildcat play in that territory in the near future. The only active operation in Yuma County at present is the Major Petroleum, Inc.'s No. 1 Blackwolf, SE NW, Section 7-27-43, which is shut down at 1,425 feet with a kink in the 12-inch. The rig may be skidded and a new start from the surface made. It is bottomed in close proximity to a sand which yielded gas in several old wells drilled in that area.

Vineland District

The Vineland district southeast of Pueblo continues to be the most active in the State, though none of the wells is yet deep enough to give any lineup on what is to be expected. The Christy-Frantz Corp.'s No. 1 Mannerich, NW SW, Section 34-21-63, less than half a mile north of the discovery well, was below 200 feet when the boiler blew up. A new boiler has been installed and drilling was expected to be resumed yesterday. Peterson & Andrews' No. 1 Carr, C SW SW, Section 13-22-63, being drilled by Henry Dickason on contract, is ready to spud. This location is 3 miles southeast of the discovery. The Christopher Oil Syndicate's No. 1 Stanbeck, SW cor. NW, Section 19-22-62, commenced spudding on March 1. This location is 4½ miles southeast of the discovery. Former Governor O. H. Shoup and associates have incorporated the Sundance Oil Co. with a capitalization of $100,000, and will start several wells within two weeks. Others associated with Mr. Shoup are Henry McCarthy, of Pueblo; Carle H. Smith, Denver; M. E. Johnson and Fred J. Welke, Arvada; and O. H. Mitchell, Denver. Two of the wells to be drilled at once will be on the Oliver and Lubers lease in the NW NE, Section 16-22-63, state land, and on the Oliver and Lubers tract in the SE Section 35-21-63. Same interests have secured a lease on the NW Section 2-22-62, upon which they have until April 23 to begin operations. It is reported the Ohio Oil Co. is preparing to drill, but this is not confirmed and is based on leases being taken by A. F. Neely, of Colorado Springs, in the SE Section 17-22-62, SW Section 9-22-62, and SE Section 10-22-62, being on the Bar BX Ranch and comprising 200 acres, and another block of 600 acres in the same vicinity. Neely represented the Ohio company in former drilling in that territory. A number of locations have been reported, but these have not yet started work. The Security Oil Trust's No. 1 Bush, SW NW NW, Section 14-22-63, set the 12½-inch casing at 40 feet to shut off surface water. The Christy-Frantz Corp.'s No. 1 Vey, C NW, Section 13-22-63, has commenced spudding, and C. W. Sheffer's No. 1 State-Oliver-Lubers, SW NW SE, Section 4-22-63, has commenced drilling. S. W. Windle has a stub derrick up for No. 1 Dunn, NW cor., Section 11-22-63, and George Windle has a stub derrick up for No. 1 Alber, NE SE, Section 6-22-63.

Florence-Canon City

In the Florence-Canon City district, the Continental Oil Co.'s No. 5 McKenzie, SE NW, Section 1-19-70, is rigging up and same company's No. 2 Steinmier, NE NW, Section 35-18-70, a new operation, is drilling at 510 feet. B. O. Bunker's No. 1 Stronier, NW NW, Section 5-19-70, was dry and abandoned at 1,694 feet. This is the well which cut a 10-foot vein of anthracite coal at 1,200 feet, being a discovery that may be as important as if it was an oil well.

In Montrose County, the Uncompahgre Oil & Gas Co.'s No. 1, Section 27-50n-10, has pulled defective casing, run a new string and is drilling below 1,530 feet.

The Grand Union Oil Co. is reported to have acquired the drilling rights on the holdings of the Diamond Oil Co. and the Embar Oil Co. on the Red Creek Dome in El Paso County. The company at the time of organization secured the holdings of the Red Creek Oil Co. upon which it is putting down a test on the NW cor. SW, Section 19-17-67. This well is bottomed at 2,600 feet.

In Huerfano County, the Parker Club, Inc.'s No. 1, Section 4-28-68, Badito-Alamo Dome, joint with the Kinney-Coastal Oil Co., is bottomed at 1,395 feet in hard siliceous lime and preparing to shut off water.

In Routt County, the Texas Production Co.'s No. 4 Belle Dennis, NE SE, Section 7-6n-86, Sundance test on the Tow Creek Dome, is bottomed at 4,120 feet and setting up rotary to mud off Dakota water, and its No. 6 Quaintance-Hocking, SW NE, Section 18-6n-86, is drilling at 1,200 feet.

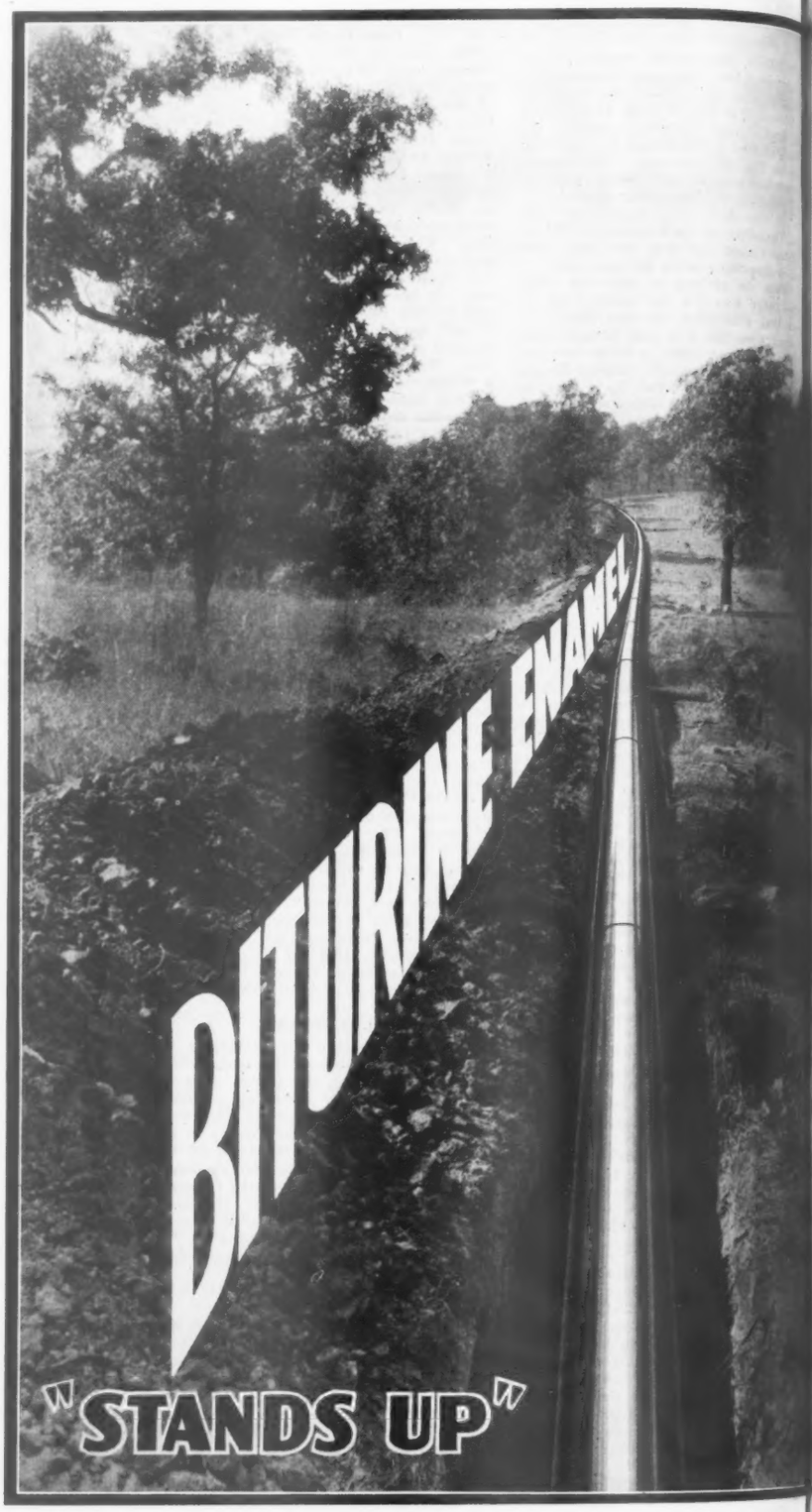
Moffat County

In Moffat County, the Midwest Refining Co.'s No. 7-M Parkinson, NW NW, Section 23-4n-92, Iles Dome, is drilling at 3,369 feet in variegated shale with 1,800 feet of oil from an upper horizon in the hole. Same company's No. 24-SD Parkinson, SE NW, Section 22-4-92, is fishing for 10-inch bit at 3,001 feet. The hole is flowing water from the Lakota sand. The Texas Production Co.'s No. 36 Lloyd, SE cor., Section 21-4n-92, is bottomed at 3,268 feet and underreaming the 8¼-inch at 3,263 feet.

Thomas McLaughlin and others' No. 1 Williams, NW SW, Section 2-3n-92, is delayed by a storm. It is bottomed at 3,255 feet after passing through a water sand at 3,248-55 feet showing some gas in the top. On the Moffat Dome, the Texas Production Co.'s No. 11 Knowlton, SE cor., Section 33-5n-91, set the 8¼-inch at 4,336 feet and is waiting for cement to harden. Same company's No. 5 Walter Wick, Section 10-4n-91, is drilling at 4,479 feet.

In the Wellington-Fort Collins district in Larimer County, the Continental Oil Co., which took over this operation from the Union Oil Co. of California on January 1, is moving the scattered buildings to a central location to the Scott lease on the Wellington Dome. All the buildings from the tank farm on the Evans place on the Fort Collins Dome, the warehouse, shop and small buildings at Wellington, and four bungalows are being moved to the new location. The company's No. 2 Elder, SW NE, Section 18-9n-68, Wellington Dome, is drilling at 4,450 feet, and its No. 3 Mitchell, SE NE, Section 6-9n-68, is drilling at 2,000 feet.

Johnson and Howard's No. 1 McFad-



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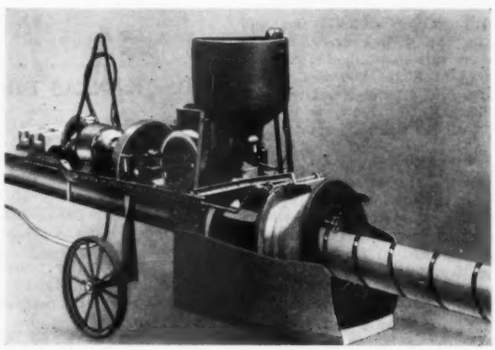

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HOUSTON PORTLAND SEATTLE SPOKANE

den, Section 18-3n-70, in the Lyons Townsite in Boulder County, is drilling on down without showing any material change since encountering a freakish show of oil at 65 feet. At last reports it was drilling at 135 feet with a little seepage water making its appearance in the hole along with about 1 bbl. per day of crude. The first objective sand, the Ingleside, is expected within the next 25 to 50 feet.

WYOMING

Most of the Wyoming wildcats still remain shut down and those that have been able to continue drilling have made but little progress. On the Oregon Basin structure in Park County, the Ohio Oil Co., Producers & Refiners, and others are not doing any drilling and no wells are being started. The Wisconsin Holding Co.'s No. 2 Rousch, SW SW, Section 9-51-100, one location east of the offset location to the Continental Oil Co.'s producer, No. 1 State, on Section 16, is giving favorable indications of coming in as a producer. It topped the Embar at 3,905 feet where it set the 6¼-inch and is preparing to drill in. The Cody Petroleum Co.'s No. 7 Klindt, Section 7-51-100, is drilling at 3,510 feet, and its No. 1 Garner, SW NE, Section 27-51-101, is changing over to cable tools at 2,808 feet and has made no new hole for the past month. On the Frannie Dome, the Midwest Refining Co.'s No. 36 Rosenberg, SE NW, Section 25-58-98, is drilling at 1,175 feet in dark gray sand, and its No. 1 Kirk, SE cor., Section 23-58-98, is drilling at 1,490 feet in shale.

In Hot Springs County, the Texas Production Co.'s No. 1, NW SW, Section 23-45-100, Skelton Dome, is shut down for repairs at 1,415 feet. In Sublet County, in the southwestern area, there is very little work actually under way. The California Co.'s No. 1 Wyss, NE SW, Section 12-32-115, South Cottonwood, is the only one of that company's three wildcats making any progress. It is drilling at 1,499 feet in hard gray sand, this formation having persisted for more than 200 feet. J. F. Nottingham is reported preparing to start a well on Section 22-27-113, in the La Barge district. In Lincoln County, the Midwest Refining Co.'s No. 1 Waterfall, Section 35-22-115, is drilling at 2,540 feet in hard sand.

In Carbon County, the Producers & Refiners' No. 1, Section 14-25-89, Sherrard Dome, is still bottomed at 3,027 feet and trying to shut off gas. The gas horizon was encountered two months ago and a fire destroyed the derrick which has been rebuilt.

In Fremont County, the Producers & Refiners' No. 7, Section 14-32-95, Sand Draw, is still held up at 2,917 feet and is milling on the drill rods. The gas encountered at this depth last December was estimated at 65,000,000 feet. Herman B. Gates and others' No. 1, Section 6-33-94, Alkali Butte Dome, is drilling at 500 feet with the Shannon sand as the objective.

MONTANA

The Sunburst Field started to show its freakishness in production again the past week. After being partially or wholly shut down for three weeks, the operators in Sunburst expected to find their wells needed relief from water before the production could be brought back to normal.

In the Hannah Porter Pool, where freak wells were the rule last year, the Hannah Porter No. 3 Harte started doing stunts as soon as the pump started. This well had been making around 50 bbls. daily up to the cold spell. Shortly after being started up, the well, which is in Section 7-34-1, commenced to increase its production and the output has climbed until the well is making around 500 bbls. daily. It put 2,000 bbls. into the tanks in four days and keeps on steadily increasing. At last report it was close to 700 bbls.

The No. 2 Harte on the same lease was about to be abandoned when the cold snap shut down the field. It started flowing and is now making 50 bbls. daily and increasing its production slowly. On the adjoining lease the Radigan-Hungerford wells are also showing a marked increase in production.

The Bethel Adams gasser is in this pool and came in last fall. It was ordered closed by the State oil and gas inspector and immediately the surrounding wells on adjoining territory started to make water. Pumps were put in to take care of the water and now it seems the wells have pumped out all the water and the increased production is following the water into the wells.

The Hibbing Faunce gusher has changed from oil to water and is making nearly all water now. Special pumping equipment has been installed in an effort to help the well back to oil.

In the Pondera Field four new completions were reported. All four will make producers and are owned by the Midwest Refining Co. They are well inside the developed area. Two are rated at 150 bbls. each, the third is an average producer and the fourth is showing some gas pressure with a little oil spraying. The latter is expected to blow out the gas soon and then become an oil producer.

Prospects appear bright for a gas pipe line to be laid the coming summer in northeast Montana. Glasgow, County seat of Valley County, is expected to be the western terminus and is considering a franchise.

ROCKY MOUNTAIN PRODUCTION
Daily Average Runs Week Ended March 9

WYOMING	
Salt Creek	34,340
Big Muddy	2,270
Grass Creek	2,270
Elk Basin	760
Ferris	20
Rock River	2,320
Lance Creek	290
La Barge	2,040
Poison Spider	1,080
Oregon Basin	3,000
Osage	290
Lander	560
Byron	40
Lost Soldier	3,490
Simpson Ridge	60
Dutton Creek	50
Rex Lake	130
Hamilton Dome	600
Greybull	10
Total Wyoming	53,620
MONTANA	
Cat Creek	1,350
Kevin-Sunburst	5,420
Pondera	1,880
Total Montana	8,650
COLORADO	
Florence	1,243
Moffat	1,137
Fort Collins	2,566
Iles Dome	1,483
Rangely	100
Tow Creek	440
Boulder	25
Total Colorado	6,994
NEW MEXICO	
Rattlesnake	...
Hogback	510
Artesia	962
Cap Rock	119
Table Mesa	...
Total New Mexico	1,591
Total Rocky Mountain	70,855

KANSAS FIELDS

(Continued from Page 44)

Corp.'s No. 1 "B" Haury, SW cor. NE SW, Section 11-23-2w, blew in with a good gas yield while the cement was being drilled out of the hole after casing was set. The bottom of the hole is 3,014 feet, and the gas is estimated at 25,000,000 feet.

Butler County

Shell Petroleum Corp.'s No. 1 Thiesen, SE cor. SW SE, Section 10-24-3, is a rig under construction. Empire Oil & Refining Co.'s No. 15 Huston, NE cor. SW SW, Section 19-26-5, made 30 bbls. from sand 2,625-40 feet. Phillips Petroleum Co.'s No. 1 Greer, NW cor. SW NW, Section 23-27-5, has been abandoned at 3,252 feet.

Cowley County

Skelly Oil Co.'s No. 2 Sanders, NW cor. NE, Section 31-31-6, is spudding. Independent Oil & Gas Co. and others' No. 1 Youle, NE cor., Section 16-32-4, is a rig. Lario Oil Co. made location for No. 1 Gilke, NE cor. SW, Section 28-34-6. Trees Oil Co.'s No. 1 Asmussen, NW cor. SE NW, Section 29-30-5, was completed for 20 bbls. in sand 2,935-40 feet. J. A. Hull's No. 19 Kukuk, SE cor. NE NE, Section 24-32-4, made 120 bbls. from sand 2,960-3,040 feet.

Dickinson County

T. C. Johnson made location for No. 1 Detweiler, SW cor. NE NE, Section 32-16-4.

Greenwood County

The Prairie Oil & Gas Co. made location for No. 1 Beuchat, NE cor. SW SE, Section 5-24-12. Independent Oil & Gas Co. is erecting the rig for No. 10 Sheperd, SW cor. SE, Section 2-22-10. Shell Petroleum Corp. & Swartz's No. 4 Sheets, SE cor. NW NE, Section 23-22-11, is a rig. Phillips Petroleum Co.'s No. 4 Green, SW cor. NW NE, Section 11-22-10, has been completed for 200 bbls. in sand 2,140-72 feet. La Robb Oil Co.'s No. 1 Teeter, NW cor. SW SW, Section 18-25-9, made 25 bbls. in sand 2,441-57 feet.

Marion County

Shell Petroleum Corp. has the cellar dug for No. 1 Suderman, SE cor. NE NW, Section 12-19-2. Darby Petroleum Co. has the rig on the ground for No. 3 Nickel, SE cor. NE SW, Section 12-19-2. Shell Petroleum Corp. moved the rig out for No. 2 Funk, SW cor. NW SW, Section 7-19-3. General Utilities Co. is erecting the rig for No. 1 Burkholder, CSL N half SE, Section 8-19-3.

Riley County

General Utilities Co.'s No. 1 Gray, NE cor. SE, Section 30-6-6, is rigging up.

Sedgwick County

Derby Oil Co.'s No. 1 Gorman, NW cor. SE NW SW, Section 6-26-1, is drilling at 1,800 feet. The Prairie Oil & Gas Co. made location for No. 1 Black, NW cor. SW NE, Section 21-25-1.

Sumner County

The Prairie Oil & Gas Co. staked location for No. 4 Olson, NW cor. NE NW, Section 3-35-3.

OPERATOR DISCUSSES PRESENT SITUATION

(Continued from Page 33)

Oklahoma, and the Humble Oil Co., operating in Texas, have been in the vanguard in these two states in trying to slacken drilling and preventing any more oil being brought upon the market than was actually needed. Were it not for the conservation policies largely inaugurated by this branch of the Standard, and in the main followed by the majority of the bigger companies, confusion in the oil industry would certainly have been much worse.

But, on the other hand, even this big leader in the fight for sanity in the oil industry has itself helped in some measure to add to the general bearishness of the situation, principally by wildcatting and by additional development and exploration in foreign countries.

Cites Colombia

The Standard of New Jersey, through a subsidiary, the International Petroleum Co., owns practically all the production in the country of Colombia. Since the present overproduction situation started, this company has laid an additional pipe line from its field in Colombia to tidewater, and figures as given in the annual number of The Oil and Gas Journal show that production of that country increased nearly 40 per cent from 12,216,000 in the first 11 months of 1927 to 16,619,000 in a like period in 1928. Now, remember, that this production is coming from a field where there is no competition and where the production is solely under the charge of the Standard of New Jersey's operating subsidiary. True, production could have been greatly increased and the present pipe line capacity would permit of additional marketing of its production; yet the fact remains this additional oil was produced and brought to the markets of the world when it was not needed.

The Humble Oil Co., through its able president, W. S. Farish, has been a leader in the oil conservation movement in Texas, especially in West Texas, which has seen the most complete conservation of oil, in comparison with the amount of oil that could be produced, that the oil industry has ever witnessed.

In this connection, I want to take my hat off to the Texas Railroad Commission—when it issues an order, it is obeyed. And when, as recently happened, one or more companies and one or more individual operators refused to follow the order of the Commission, fines were hastily assessed, and the offending parties, figuratively speaking, almost broke their necks in hastening to comply with the Commission's orders. How much different the situation is from what it is here in Oklahoma, where it virtually looks as though when the Commission issued an order and someone did not want to concur therein the Commission would ask, in substance, "Well, if you won't do that, tell us what you will do, and we will make an order in accordance therewith." Even when the Texas Commission issued an order prohibiting shooting, swabbing and use of the air-lift, such practices ceased instantly. For those who would have dared violate the order, no mere slap of the wrist would have been the penalty. Thank heaven, Winkler and Pecos Counties are located in Texas rather than Oklahoma!

Boggy Creek as Example

But in spite of the able leadership assumed by the Humble in controlling the Texas situation, this company has been very active in wildcatting and has opened up a good many additional oil reserves. The outstanding achievement along this line is probably the opening up of the Boggy Creek dome in Cherokee and Anderson Counties in East Central Texas. True, the production that has to date been brought upon the market by the opening up of this dome has not been much of an additional burden, but the mere finding of prolific production at this point has opened up the possibilities of finding oil on the many known salt domes in this general territory, which prior thereto had been looked upon with indifference by practically all oil producers who had believed such inland domes would, if anything, produce only gas. Following the bringing in of the Boggy Creek dome, practically all similar inland salt domes, both in Texas and Louisiana, have been quickly grabbed by the leading companies and more or less general wildcatting started. There is no telling how much additional oil will eventually be opened up directly due to the pioneering work done by the Humble Oil Co., in this area.

In addition, the Humble has recently opened up the Raccoon Bend and the De Walt domes in South Texas. Already these two operations have added more than 10,000 bbls. a day to the daily production, and it does not take many such straws to break the oil market's back.

Compliments Carter Co.

In Oklahoma, the Carter Oil Co. does not seem to have been as active as the Humble, and no big strike has been made by it. This company, under R. M. Young and J. A. Veasey, has been a leader in trying to bring about sane development and production in the Seminole area. I understand that at times during 1927, when the Seminole Field was being prorated, the Carter's pipe line subsidiary, the Oklahoma Pipe Line Co., even penalized some of its own properties in order more adequately to take care of some of its customers' connections. What a change from the old days of the industry, when, under similar circumstances, the company's oil would have been run at the expense of the other fellow's!

The Gulf interests have probably added more to the known oil reserves during the past two or three years of overproduction than has any other group or interest. The various subsidiaries have been quick to acquiesce in all conservation movements, yet they have been very active during the same time in building up further reserves to meet their future needs. One of its subsidiaries has been especially active in drilling and producing in Venezuela during the same period.

The Gulf Oil Co., operating in Texas and Louisiana, has opened up a number of important reserves during the past two or three years. Probably its most outstanding achievement is its having opened up for production the Sorrento Dome in Louisiana, located in a rank wildcat territory east of the Mississippi River and in a territory which had been heretofore looked upon as improbable oil territory. Like the Humble success at Boggy Creek Dome, the actual production opened up by the Gulf in this area is not in itself so important as the fact that its success

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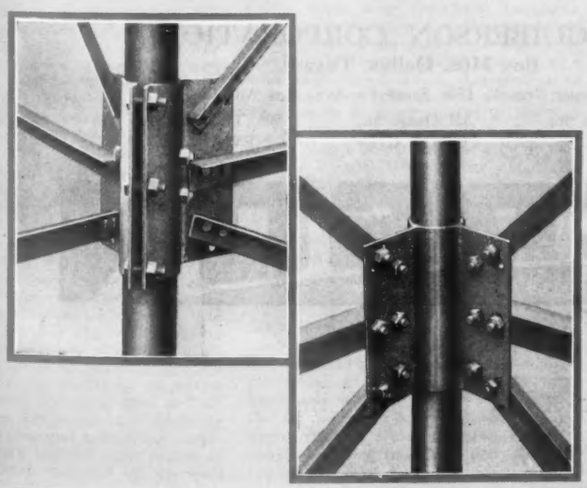

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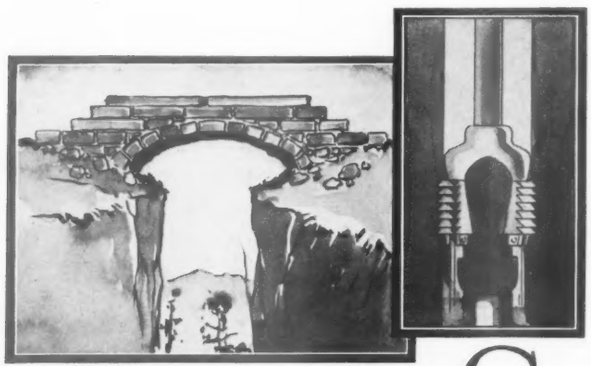

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has prompted other interests to locate and block up additional domes in the same territory where active wildcatting operations are now under way. It is now seen that this general country has great possibilities for further production and is one of the many bearish influences in the general oil situation. Another recent outstanding success of the Gulf is the bringing in about a month ago of a well flowing several thousand barrels from the unusual depth of 5,600 feet on the Fannette Dome in South Texas, as the culmination of a long and costly development campaign on that structure.

During the same period, the Gulf has added tremendously to its reserves in the West Texas fields. Chief probably among these successes should be listed the big McElroy Ranch, owned in its entirety by the Gulf, and which has only been partially developed due to market conditions. In the past few days announcement has been made of a 6,000-foot test to be made in Nocona County, Texas, which, if successful, will revise present ideas of deep-production possibilities, both in North Texas and in Southern Oklahoma, and will add tremendously to the estimated reserves of many thousands of square miles. Such a strike will be bound to be followed by a deep drilling campaign, both in Southern Oklahoma and North Texas.

Unit Operation

In Oklahoma, the Gypsy Oil Co., under the leadership of Henry McGraw, has had a large part in assisting in bringing about such conservation measures as have been put in effect. This company has been very active in bringing about the unit operation of possible producing territory, thus doing away with wasteful competitive line drilling that has been the rule in the past. An outstanding wildcat success of this company during the past two years was the bringing in of the initial well in Earlsboro. As things now stand, the industry would have been in better shape if the drilling of this well could have been indefinitely delayed.

The Gypsy drilled in the discovery well at Mission, and in order to help the general demoralized condition, shut in the well for a long time, and since that time has been a leader in trying to stop development. The same company has also made other outstanding wildcat strikes in the Seminole area, and following same, has proceeded with development only when forced by circumstances.

Another outstanding success of the Gypsy is the Sedgwick Field in Kansas. This well was drilled on a block of acreage held together as a unit, and as a result, drilling operations have been carried on sanely; but, also as in the case of the Humble in East Central Texas and the Gulf in Southeast Louisiana, the very fact of this strike has opened up the general possibilities of the whole territory, with the result that today this is the livest drilling area in the Mid-Continent field.

The Gypsy, in company with The Texas Company, the Marland, Skelly, the Midwest, and others, has been active in New Mexico, where at one time it was thought another Winkler Field would be found, and, in fact, the chances are still good. The fact that no such big field has yet been found is not the fault of the companies just named, as they have been very active in prosecuting a drilling campaign in this very likely looking territory. That no market-breaker has been found has certainly not been due to any lack of effort to find same.

St. Louis Wilcox Sand

Probably the outstanding wildcat success of the Magnolia during the past two years was the opening up of the Wilcox production at St. Louis, which pool has in a surprisingly short time gone from one of the minor pools to the biggest pool now producing in the general Seminole territory. Its 130,000 bbls. a day of production was certainly one of the leading causes in bringing about the recent drastic cut in the crude oil market. In spite of the fact that the producing properties in this pool were limited to three or four of the leading companies, all efforts to hold back development have been unsuccessful, although had the same degree of co-operation been exercised in this pool as has been shown at Little River, Mission and other areas, this production could have been brought about in a more orderly manner.

Probably one of the best-known individual oil leaders in the United States is Henry L. Doherty. It was only two or three short years ago that his views on conservation were considered drastic. Yet, compared with the recent legislation now sponsored by interests that then frowned upon Mr. Doherty's suggestions and his plan of two or three years ago, his ideas seem conservative indeed.

Yet, on the other side of the picture, we see one of Mr. Doherty's subsidiaries one of the most active wildcatters in the Mid-Continent Field today. The Indian Territory Illuminating Oil Co. has had a very remarkable degree of success during the past two years. It enjoyed the unique distinction of bringing in almost simultaneously, two enormous wildcat wells, that opened up the Bowlegs Pool with a loud bang, followed shortly afterward by another gusher that opened up Little River.

As in the case of the Gypsy Oil Co.'s strike at Earlsboro, how much better, in the light of subsequent events, it would have been had the necessary price been paid to have secured extensions of this company's leases, rather than to see this additional oil brought onto the market under present conditions.

Oklahoma City's Well

The same company's recent strike at Oklahoma City is still in the minds of the world industry. If ever a wildcat strike was made that should under all circumstances have been postponed, this was certainly one.

The finding of gusher production in Oklahoma County has opened the eyes of the oil world as to the possibilities of an enormous new area, and we believe that the immense possibilities of this whole territory had more to do with the recent crude price break than any other one thing. Already about 30 locations and drilling wells have resulted from the Oklahoma County strike.

This company is now actively drilling a deep wildcat test on one of its blocks in Coal County. This area, like the Oklahoma City area formerly was, is today considered as without much prospects, but if the geological department of the Indian Territory Illuminating Oil Co. proves to be as right in Coal County as they were in Oklahoma County, God help the oil industry! For, as we all know, the opening up of prolific production in the Wilcox sand in this area will start a big flood of wildcat wells testing out the innumerable structures located in Coal and surrounding counties, and there is ample room for several Greater Seminoles. If that country is going to produce oil in the deeper sands, let's postpone the evil thereof as long as humanly possible.

Leasing in Louisiana

Although The Texas Company has not made any outstanding wildcat strike in the past two or three years that has added very largely to the Nation's oil resources, yet a recent deal has tremendous possibilities. I refer to its having recently taken over from the Louisiana Land & Exploration Co. nine blocks of leases covering as many salt domes in Southern Louisiana, and in addition to a large cash consideration, undertaking to drill four test wells on each dome. This development is being started in the face of the present overproduction situation, and if this wildcatting campaign is successful, it will likely bring about the opening up of substantial additional oil reserves.

Elwood Field

Edward B. Reeser, president of the Barnsdall Oil Co., and recently elected president of the American Petroleum Institute, has been a very active leader in the conservation movement in the general Mid-Continent area, and both his company and his associates have been very active in trying to hold down the overproduction in Oklahoma. On the other hand, this company has very recently, in California, added very materially to the overproduction situation. The Barnsdall people for some time have been the leading operators at Rosecrans, and only recently have been deepening some of their shallower producing wells in that field and bringing in large wells from the deeper horizons, and this in the face of the present overproduction in California.

Its outstanding success, however, has been its opening up, in conjunction with the Rio Grande Oil Co., of the Elwood Field brought in during last summer. This field is comparatively shallow for California, and yields a high gravity oil, and the oil is being delivered directly from the lease tanks into tankers on the ocean, as the property lies on the ocean front. The production from this field is now 21,000 bbls. a day from six wells, and, according to a recent issue of The Oil and Gas Journal, three strings of tools are being run until the production shall be brought up to 50,000 bbls. a day, and this in spite of the fact that the entire productive area is owned by the one partnership. It has been estimated that this field will probably yield 50,000,000 bbls. of oil. If the production is increased to 50,000 bbls. daily that will equal the rate at which oil went into storage in the whole United States during the year 1928. On top of the large quantities of oil that this field is bound to produce are the additional possibilities of the general country surrounding Elwood, where a big wildcat play is already under way. Every barrel of this Elwood production, due to the Panama Canal, is directly competitive with Mid-Continent oil.

Outstanding Discoveries

Outstanding discoveries during the past two or three years have been made by many other companies and individuals.

The Yount-Lee Co. has produced many millions of barrels of oil from the deep sands opened up by it on the flanks of Spindle Top. During the past few weeks the same company has opened up a 5,000-bbl. well from the deeper sands on the flanks of Barbers Hill, one of the largest salt dome structures in the whole country. Some operators think sands around this dome may even equal or excel the record made at Spindletop, where the deeper sands under some leases have already yielded in excess of one or two million barrels per acre.

The Sun Oil Co. during the past year has been very successful in its wildcatting campaign; principally at South Liberty, Southwest Texas, and Washington County, Texas. This company seems to have a miniature Spindletop in its Gay Hill dome in Washington County, where it has recently drilled in two wells producing about 5,000 bbls. a day each at a depth of 1,000 feet. Although this dome is owned entirely by the Sun company, the many fee interests are requiring active development.

The Skelly Oil Co., in its recent discovery in Lea County, New Mexico, seems to have found the oil pool that so many companies have been trying so hard to locate. This oil will immediately find a market, as The Texas Company is already laying plans to lay a pipe line into this territory.

The Texon Oil Co. has just recently finished, after two years drilling, of a sensationaal well from the Pennsylvanian in the Big Lake oil field of West Texas. This 8,500-foot well seems continuously to increase, having now reached a daily output of about 2,000 bbls. The additional deeper prospects of the whole West Texas area have been immeasurably increased by this most remarkable discovery. Already there is discussion of starting similar tests in other West Texas areas. Such action seems inconceivable in view of the present oil flood in West Texas.

The Pecos oil field, the biggest in the world, was opened up about two years ago by the Transcontinental and the Mid-Kansas, the latter a subsidiary of the Standard of Ohio.

Other more or less notable discoveries have recently been made by the Pure Oil Co., T. B. Slick, the Empire and others, but the principal new strikes have already been outlined above.

California Situation

The most serious overproduction situation in this country is in California. This is chiefly due to the Santa Fe Springs Field, where nearly 200,000 bbls. daily of new production is now being thrown upon the market, as a direct result of the opening up by the Wilshire Oil Co. of a deeper producing horizon during the past year, which has resulted in a very saturnalia of frenzied drilling in this congested town-lot area. This has resulted in a daily waste of many millions of feet of natural gas, as well as irreparable injury to shallower sands with millions of barrels of recoverable oil.

Just during the past week, a leading independent, George Getty, has determinedly passed up this new and still flush sand and has drilled to a still deeper producing sand. During the same week the Associated Oil Co., on the edge of the field, has encountered a still deeper sand. The resulting mad race for these still deeper sands cannot help but result in pandemonium over the whole town-lot area. If there ever was a situation that demanded the iron hand of authority, be it Federal or State, it is certainly the present situation at Santa Fe Springs.

The Milham Exploration Co. (Seaboard Oil) in its recent strike in Kettleman Hills at the depth of 7,500 feet, has opened up what many believe to be one of the biggest fields in the world. The well produces about 4,000 bbls. a day of almost pure gasoline, besides 40,000,000 feet of gas, yielding 2 or 3 gallons of gasoline per thousand.

Use of Air-Lift

It seems quite a paradox that the field which led off the present overproduction situation should also have been the one where the air-lift was first put into general practice and improved until it has reached its present state of perfection. By its aid, Seminole operators are most successfully now producing not only next year's oil, but oil that in the ordinary course of operation would not have been produced until ten years from now, I believe it is generally admitted that had the flowing wells at Seminole been allowed to produce naturally without artificial means, that, instead of an overproduction of high gravity oil, we would have seen an actual shortage during the past two years. Were the air and gas-lift even abandoned today, the present overproduction would overnight, be changed into an acute shortage.

Admitted that this scientific method of producing oil is the cheapest and most economical, yet would not the Seminole operators, to say nothing of the whole industry, have made more money had they not used this artificial stimulation, thus receiving more money for a less quantity?

Had Seminole production been handled in the same manner as was production at Cushing, would not the demand for high-grade oil have necessitated the drilling of many hundreds of wells in small-well territory, due to the fact that a 5,000-bbl. well at Seminole has produced the oil that might otherwise have been obtained from fifty wells in 100-bbl. territory?

The writer, in company with other Southern Oklahoma operators, attended the Corporation Commission hearing held in Oklahoma City early in 1927, when the seriousness of the Seminole situation was beginning to be realized, and there made a serious effort to have the use of the air and gas-lift ordered abandoned at Seminole, but met with the almost unanimous opposition of the Seminole operators.

I cannot help but think that several years from now, after the cream of Oklahoma's flush high-gravity fields have been skimmed, that many operators now producing at Seminole will regret that this most marvelous of all light-oil fields was not developed in a more orderly manner and its high-gravity oil produced over a long period of years.

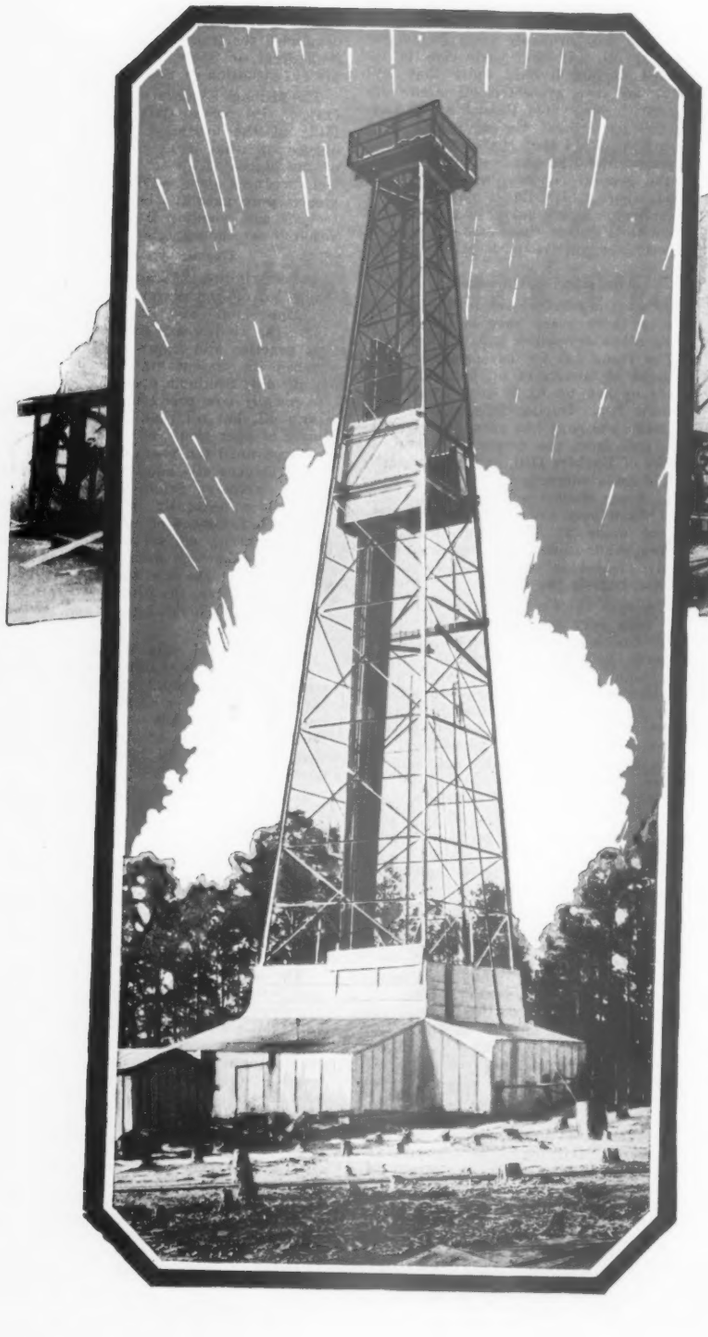
Certainly very little of the overproduction situation resulting from Seminole can be laid at the doors of the smaller companies and operators, constituting the rank and file of the Mid-Continent oil fraternity.

Foreign Production and Imports

The ever-increasing development of the various foreign fields and the resultant constant increase in imports therefrom

When Hurricanes Sh

The Oil Fields



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certainly cannot be laid at the doors of the smaller operators.

The failure of the comparatively few foreign operators to ease up on the drill and let up on the constantly growing flood of importations has done more to create bitterness on the part of the independent producers than any other one thing. Week after week, and month after month, we are continually admonished: "Ease up on the drill—cease wildcatting—conserve! conserve! conserve!"

No wonder that many have gained the impression that the "s" and the "v" have exchanged places, with the result that we have had only "conversation" where we should have had "conservation."

Is it not this feeling of unfairness that is largely responsible for the lack of co-operation by some of the smaller operators in bringing about the much-needed conservation?

Venezuela is the chief offender in causing the ever-rising flood of cheap foreign oil, and the failure, it seems, must be laid at the door of one or both of the two big American producing interests.

It is common knowledge that the Dutch-Shell interests during last year made a number of determined efforts to get American co-operation in holding down production in Venezuela within reasonable limits.

If but three or four big business interests cannot get together in the Venezuela fields, it is certainly not surprising that so much difficulty has been encountered in trying to shut down the various American fields, where as many hundreds of diverse interests are sometimes affected.

Anglo-Persian as Example

How much more far-sighted in production policies have the foreign oil companies proven themselves to be. The Anglo-Persian Oil Co., partly owned by the Dutch-Shell and partly by the English Government, has, in its wonderful properties in Persia, probably the greatest known oil reserves, area considered, to be found anywhere. Not only has this company let up on additional drilling in Persia, but has still further pinched in its producing wells.

Rather than produce oil under present ruinous competitive prices, it is allowing England to obtain an increased percentage of its refined products from American sources, even partially shutting down its great English refinery operating on Persian crude. So far as the present overproduction situation is concerned, how unfortunate it is that the Venezuela properties are not under the management of a single broad-minded company such as this.

Much has been said concerning the attitude of Great Britain in refusing to allow American producers to participate with English companies in exploiting petroleum reserves controlled by her. Picture the demoralization that would have resulted were one or more American oil companies engaged in a mad competition in Persia with the Anglo-Persian to see which company could get out the most oil in the least time, irrespective of needs or prices, such as is today the situation in Venezuela. Is not the world industry today that much better off, because of England's petroleum policies?

South America

Colombia is producing about 50,000 bbls. a day, but due to its production being under the control of the Standard of New Jersey, operations are comparatively in an orderly manner. The same conditions prevail in Peru, where a smaller production is kept in hand by another Standard of New Jersey subsidiary. The same company is actively prospecting and has opened up one or more prospective oil fields in Bolivia, but the marketing of these oils is indefinitely in the future.

Outside of Venezuela and Colombia, foreign fields are a minor threat, so far as American imports are concerned.

Argentina is not producing sufficient oil to meet its own requirements.

Mexican production has continuously declined, largely as a result of salt-water intrusion, as well as because of the competition of cheap crude from Venezuela. Mexico is today producing only 100,000 bbls. a day, whereas, seven or eight years ago its production reached half a million barrels daily.

Enormous petroleum reserves have been recently opened up in Irak, or Mesopotamia, by the Turkish Petroleum Co., stock ownership of which is fortunately controlled by Shell, English and French interests, with four American companies holding barely 24 per cent. Under foreign control, this field will probably not be exploited until there is actual need for the additional oil.

Natural Gas Competition

I dare say but few oil producers have given thought to the very large quantities of fuel that have been displaced by natural gas during the past two or three years. I believe it is not exaggerating when I say that fully fifty to one hundred thousand barrels daily of fuel oil has been displaced as result of natural gas pipe lines recently laid, to say nothing of vast additional projects now under way or in contemplation.

The strangest thing of this situation, however, is the fact that various leading oil interests have themselves been the leaders and pointed the way to others in bringing about this competition with their own largest and cheapest product.

Largely as a result of an enormous gas reserve recently opened up in California at Button Willow and Kettleman Hills by the Milham Exploration Co. (Seaboard Oil), pipe is now rolling for the construction of a pipe line to market 100,000,000 feet daily, or more, of this gas in San Francisco and surrounding communities. This section uses fuel oil almost entirely, and the oil trade papers state that this natural gas will displace daily, many thousands of barrels of fuel oil, in a state where fuel oil is already such a drug upon the market that the very mention of its name will make a California refiner almost apoplectic with anger.

Artificial Gas Affected

This natural gas competition with fuel oil also affects another vital petroleum product, in that whenever natural gas is available, artificial gas plants are dismantled. It is certainly no exaggeration to say that the replacement of artificial gas with natural gas at Denver, St. Louis, San Francisco and other cities, will result in the loss to the market annually, of many millions of barrels of gas oil.

Frankly, I am making no argument against the use of natural gas to replace artificial gas; however, it does seem more or less an economic sin to see such a noble product as natural gas put to such a base purpose as being used as fuel under a boiler; for it is the only product of nature which can be used exactly in the same condition as produced, and which will by its own force, deliver itself from the well direct to the consumer's burner. Such a product really should be conserved solely for domestic use, because it is convenient, cheap, and serves a need that no other fuel can ever fill.

Many of the large natural gas deposits that are now being brought to market through these new lines have been developed and available for many years. Even as far back as during the late world war the Monroe gas field of Louisiana was recognized as the biggest natural gas field known in the world. About the time of the close of the war the enormous possibilities of gas deposits in the Panhandle were shown through the drilling in of the discovery gas well in 1918, followed shortly afterward by other wells reaching as high as 100,000,000 feet daily.

At the time these two immense gas producing areas were known and their possibilities were more or less fully recognized, crude oil was high in price, reaching $3.50 per barrel in 1920, and during a portion of this time, fuel oil sold as high as $3.00 or $3.50 per barrel.

Criticizes Policy

Yet, the capitalist waits until Venezuela is pouring forth a flood of cheap heavy oil, until West Texas threatens to flood the whole world with its heavy crude, to finance and make available these enormous additional quantities of natural gas. Not only that, but the very leaders of the oil industry itself, have been the most active in the seeming effort to further demoralize the market of their largest and cheapest product.

Is it so surprising that many of the more enlightened public are already now demanding federal intervention in the affairs of an industry that seems to lack for constructive leadership, and that does not know how to act, not only for its own best interests, but, what is vastly more important, for the best good and benefit of the American public? For the whole country is directly, vitally concerned in the proper use and preservation of these wonderful products of Mother Nature.

If we soon find ourselves hailed before the bar of public opinion, there declared incompetent, and find our properties in the hands of the Government as guardian, whom have we to thank?

CHANGES IN STANDARD OF INDIANA PERSONNEL

(Continued from Page 33)

dull, treasurer, director and assistant secretary; Amos Ball, director; F. T. Graham, secretary and assistant treasurer; R. E. Clarke, assistant secretary and assistant treasurer.

Stewart's Statement

Colonel Stewart retires after 22 years service with the company. Due to his long service with the company he is entitled to an annuity of $75,000 a year so long as he is not connected with the operations of other oil companies.

Col. Robert W. Stewart

Colonel Stewart following the annual meeting issued the following statement:

"It would be idle for me to say that I leave the Standard Oil Co. of Indiana without regret. For years its welfare has been my deepest concern. Its affairs have been my very life. I have seen it grow under the present administration from a $167,000,000 corporation with 4,620 stockholders, to practically a $1,000,000,000 concern. One cannot dissociate himself from such an intimacy without a wrench.

"The regret I feel, however, is mingled with an emotion of happiness, tempered in turn by a sense of undying gratitude towards those associates of mine on the board of directors, towards those thousands upon thousands of employes, my friends for years, my friends still, who so loyally stood back of me in the contest through which I just have passed.

" 'A friend in need is a friend indeed' and in the time of my need not one of my old associates, either of the management or of the rank and file, deserted me. I cannot thank them adequately. In me they shall ever find a friend, and never an indifferent one.

William M. Burton

E. G. Seubert

Thanks Employes

"It is with no small sense either of pride or of gratitude that I thank the 7,901 of the 7,918 employe-stockholders who voted for me, and the 31,337 stockholders of the company who executed proxies on my behalf, or voted personally for me, as against the 15,204 who gave their proxies to my opponents. Particularly it is a matter of gratification that of the 19,409 stockholders in the states where the company markets its products 15,051 voted for my retention. It was a magnificent testimonial both to the company and to our administration from the people who knew it best.

"The stockholders, however, are not

Melvin A. Traylor

alone the Standard Oil Co. of Indiana. The entire list of shareholders could be changed within a year with no great effect upon the company, except as it would greatly benefit the company were shares now held in the East to be transferred to the Middle West, but in the more than 25,000 employes, in those loyal, hard working men and women who are on the firing line in sales and producing fields and refinery and office, are to be found the very heart and soul of the Standard Oil Co. of Indiana. Guided by a board of directors that is at once idealistic and practical to a high degree, it is those loyal souls who have made the company what it is today—one of the industrial marvels of the world.

"To those thousands of employes who are my friends and have supported me, I wish to say a word: Support the new management. You know those old associates of mine on the board of directors. Their hearts still are with you as they have always been. Give them that same loyal support you have given them and me so many years. The Standard Oil Co. of Indiana must still go forward.

"I wish, too, to speak a word on behalf of those loyal employes, and I trust that the new management will not consider it an intrusion, will realize that I, at least as well perhaps as any man living, know the needs of the Standard Oil Co. of Indiana. I urge that management, with the support of the shareholders, to carry out a plan on whose accomplishment I had set my heart, but which I was prevented from working out by the pressing demands of other matters—vacations with pay for every employe of the company of a certain period of service, who does not now get a vacation, whether he be an hourly paid worker in the refineries or a service station man or wherever and how employed. My old associates and I have long considered it. We found many obstacles in the way, but all of these can be surmounted. I urge them to call to their assistance the employes themselves, to submit to them the difficulties, to ask their help in solving them. Eleven years as chief executive of the company have taught me that if the employes know they are to be treated equitably, they will grant equity in return and how often have I found their advice invaluable. With their advice and help a satisfactory vacation plan can be evolved. That it will benefit the company I have no doubt whatever.

"And to those loyal employes, to my true associates on the board of directors, to those thousands of stockholders who voted and worked for me and to those people in all parts of the world who helped me during the contest just closed, I say good-by as chief executive of the Standard Oil Co. of Indiana. Would that I knew how to thank them adequately."

DISCUSSIONS ON SOME ENGINEERING PROBLEMS

(Continued from Page 32)

worthy of the Pure Oil Co. in discussing Mr. Snow's paper. Mr. Milliken called attention to the fact that three wells subjected to acid bottle measurements in the Wewoka Field showed an average vertical correction of only 1½ feet whereas one group of 78 wells in the Seminole district showed a correction of 23 feet and another group of 94 wells showed a correction of 61 feet. The three wells in the Wewoka Field, averaging 3,360 feet in depth were drilled relatively slowly by the rotary method in 1926, whereas those in the Seminole district were drilled more rapidly to depths of 4,000 feet or more.

Mr. Langworthy presented data showing vertical corrections in the Seminole district ranging from 3 to 798 feet. In a group of 75 wells, 38 wells averaging 4,181 feet in depth gave an average vertical correction or 53 feet, and 37 wells averaging 4,240 feet in depth gave an average vertical correction of 177 feet. In the Seminole City Pool 14 wells gave an average vertical correction of 196 feet. In the Maud Pool 14 wells gave an average vertical correction of 26 feet. It is difficult to explain these differences.

NEW STORAGE TANKS

CHATHAM, Ontario, Mar. 9.—Imperial Oil, Ltd., is erecting on Commissioner street, Toronto, two new storage tanks for gasoline, at an estimated cost of $132,000.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 40)

CONCHO COUNTY

Duffey & Silk's No. 1 Lovelace and Lockett, 1,050 ft. N and 640 ft. W of SE cor. Sec. 66, Blk. 70, H.&T.C. Sur. — Shut down 660 ft.

Exploration Co.'s No. 2 Hartgrove, 900 ft. S and 985 ft. E of NW cor. Johann Scheuch Sur. No. 240 — Rig.

Lloyd Jones Co.'s No. 1 Jones, 420 ft. S and 15 ft. E of NW cor. John G. Reh Sur. No. 1,878 — Shut down 150 ft.

CRANE COUNTY

Gulf Prod. Co.'s No. 6 Waddell, C NW NE Sec. 12, Blk. B-25 — Top salt 1,825 ft.; show oil and gas 3,275-85 ft.; drlg. 3,290 ft.

CROCKETT COUNTY

Barbara Oil Co.'s No. 1 Cox, 237 ft. S and 1,190 ft. E of NW cor. R. B. Dickenson Sur. — Show gas 1,000 ft.; oil show 1,320 ft.; drlg. 1,455 ft.

Eppenaur et al's No. 2 Noelke, 500 ft. N and 1,250 ft. E of SE cor. Sec. 64, Blk. 1, I.&G.N.R.R. Sur. — Location.

Lewis & Daniels' No. 1 Pecos River Bed, 19 yards S and 37 degrees E of NW cor. Sec. 33, Blk. 1, L&G.N. Sur. — Drlg. 300 ft.

W. W. Donnelly & Young's No. 1 Shannon, SW SW SE Sec. 42, Blk. BB, T.C.R.A. Sur. — Spudded and shut down.

W. W. Donnelly & Young's No. 1 Middlebuster, C Sec. 11, Blk. 9, D.&S.E. Sur. — 7,000,000 ft. gas at 1,663 ft.; shut down 1,690 ft.; small oil show.

Moncrief, Donnelly et al's No. 2 Todd, C Sec. 53, Blk. UV, G.C.&S.F. Sur. — Shut down 835 ft.

Moncrief, Donnelly et al's No. 3 Todd, C Sec. 55, Blk. UV, G.C.&S.F. Sur. — Spudded and shut down.

Tidal Oil Co.'s No. 1 Weathered, 5,055 ft. SW of NE line and 330 ft. SE of NW line Sec. 30, Blk. 31, H.&T.C.R.R. — Top salt 485 ft.; set 10-in. casing 820 ft.; drlg. 1,075 ft.

J. D. Wheeler's No. 1 State Land, 744 ft. S and 1,250 ft. E from SE cor. Sec. 73, Blk. 1, I.&G.N.R.R. Sur., but in Vacancy Strip — Shut down 595 ft.; top salt 492 ft.

CULBERSON COUNTY

Deep Rock Oil Co. et als' No. 1 Kloh-Rumsey, 800 ft. S and 1,422 ft. E of NW cor. Sec. 33, Blk. 59, Twp. 7, T.&P.R.R. Sur. — Running 10-in. casing 300 ft.

Hickey & Stiver's No. 1 C. O. Finley, 660 ft. N and 1,980 ft. W Sec. 20, Blk. 82 — Hole full water; small oil show 1,331 ft.; pipe set 1,418 ft.; shut down 1,820 ft. for drilling lime.

W. S. Hillyer's No. 1 McGregor, C NW Sec. 14, Blk. 81 — Shut down 720 ft. for water.

Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E Sec. 1, Blk. 97, Public School Land — Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; shut down 1,800 ft. for funds.

FISHER COUNTY

Bickerstaff et al's No. 1 McWhirter, 2,640 ft. E and 150 ft. N of SW cor. of Sec. 295, Blk. 2, H.&T.C. Sur. — Shut down 2,000 ft. for orders.

Cranfill & Reynolds' No. 1 Brown, 330 ft. S and E of NW cor. Sec. 4, W. E. Richardson Sur. — Cleaning out 3,178 ft.

Cranfill & Reynolds' No. 2 Willingham, 1,980 ft. S and 2,310 ft. W of NE cor. Sec. 207, B.B.B.&C.R.R. Sur. — Drlg. 2,070 ft.

Cranfill & Reynolds' No. 1 Fleming, 1,980 ft. S and 2,310 ft. E of NW cor. Sec. 207, B.B.B.&C.R.R. — Oil show 2,905 ft.; drlg. 2,985 ft.

Dunnegan Bros.' No. 1 T. Henry, 330 ft. N and E of SE cor. Sec. 21, George W. Burdett Sur. No. 322, but in Sec. 4, Robert Hibbett Sur. No. 331 — Shut down 2,310 ft.

Gilliman-McMurray & French's No. 1 Cleveland, 781 ft. N and 1,336 ft. W of SE cor. Sec. 116, Blk. 2, H.&T.C. Sur. — Set 8-in. casing 685 ft.; drlg. 1,730 ft.

Landreth Prod. Corp.'s No. 1 Cooper, 440 ft. SE of NE cor. NW Sec. 115, Blk. 1, H.&T.C. Sur. — Drlg. 2,730 ft.

Mesa Oil Co.'s No. 1 Griffin, 849 ft. N and 465 ft. E of NE cor. Sec. 20, School Land — Drlg. 370 ft.

Roeser & Pendleton's No. 1 Haugh, 440 ft. S and 1,320 ft. E of NW cor. of SW of Sec. 191, B.B.B.&C.R.R. Sur. — Drlg. 300 ft.

Texas-Phillips' No. 1 Hall, 330 ft. N and W of SE cor. Sec. 6, Blk. 20 — Drlg. 650 ft.

White Eagle Oil & Ref. Co.'s No. 1 Hughes, 4,942 ft. S and 560 ft. W of NE cor. Cosby Sur. 220 — Rigged up and shut down.

GAINES COUNTY

Pure Oil Co.'s No. 1 A. A. Williamson, 1,650 ft. S and 330 ft. W of NE cor. Sec. 110, Blk. H, D.&W.R.R. — Top salt 2,339 ft.; drlg. 3,620 ft., brown shale and anhydrite.

GARZA COUNTY

Emerald Oil Co.'s No. 4 J. M. Boren, 330 ft. S and W NE cor. Sec. 136, Blk. 5, H.&G.N. Sur. — Set 8-in. casing 1,975 ft.; pay 2,530-35 ft.; 100 qts. 2,567-33 ft.; 1,600 ft. oil; cleaning out; total depth 2,573 ft.

GLASSCOCK COUNTY

Chas. Daniel et al's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor. Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. — Drlg. 400 ft.

Gibson & Johnson's No. 1 Mann, C NW Sec. 6, Blk. 33, T.&P. Sur. — Shut down 3,245 ft.

R. R. Penn's No. 1 Hughes-Johnson, C NW Sec. 45, Blk. 30, W.&N.W. Sur. — Underreaming 2,775 ft.

Marland Prod. Co. et al's No. 7-A Settles, 2,310 ft. S and W of NE cor. Sec. 158, Blk. 29, W.&N.W. Sur. — Location.

McElreath & Suggett's No. 1 Underwood, C NE Sec. 24, Blk. 36, Twp. 4s, T.&P.R.R. Sur. — Location.

Meriweather Oil Co.'s No. 2 McDowell, 1,492 ft. N and 150 ft. E of SE Sec. 35, Blk. 34, Twp. 2s, T.&P. Sur. — Hole full water 2,665 ft.; set 6-in. casing 2,700 ft.; shut down 2,960 ft.

World Oil Co.'s No. 1-C McDowell, 1,650 ft. S and 2,310 ft. W of NE cor. Sec. 21, Blk. 34 — Underreaming 795 ft.

White Eagle Oil & Ref. Co.'s No. 1 Dunbar, C of NW Sec. 46, Blk. 34, Twp. 4s, T.&P.R.R. Sur. — Drlg. 3,340 ft.

HOWARD COUNTY

Amerada Pet. Co. & Rycade Oil Corp.'s No. 7 Dora Roberts, 330 ft. S and 2,310 ft. W of NE cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. — Drlg. 1,380 ft.

Amerada Pet. Corp.'s No. 8 Roberts, 1,116 ft. N and 1,022 ft. W of SE Sec. 128, Blk. 29, W.&N.W.R.R. Sur. — Drlg. 250 ft.

American Maracaibo Co.'s No. 1 Settles-D, 330 ft. S and 1,650 ft. E of NW cor. Sec. 158, Blk. 29, W.&N.W. R.R. Sur. — Drlg. 1,443 ft.

American Maracaibo Co.'s No. 4 Settles-C, 1,373 ft. S and 3,023 ft. E of NW cor. Sec. 6, Blk. 32, Twp. 2s — Shut down 2,005 ft.

American Maracaibo Co.'s No. 5 Settles-C, 330 ft. S and W of NE cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. — Drlg. 1,200 ft.

Bristow & Merrick's No. 10 Hooks, 660 ft. S and 2,440 ft. E of NW cor. Sec. 140, Blk. 29, W.&N.W.R.R. Sur. — Drlg. 1,880 ft.

California Co.'s No. 5 Roberts, Lease 2, 1,170 ft. S and 150 ft. W of NE cor. Sec. 156, Blk. 29, W.&N.W.R.R. Sur. — Moving in material.

California Co.'s No. 1 Settles, 2,310 ft. N and W of SE Sec. 158, Blk 28, W.&N.W. Sur. — Total depth 3,031 ft.; preparing to pump.

Comet Oil Co.'s No. 3 Clay, 200 ft. S and E NW cor. Sec. 154, Blk. 29, W.&N.W.R.R. Sur. — Location.

Cosden & Co.'s No. 3 Roberts, Lease C, 1,520 ft. N and 600 ft. W of SE cor. Sec. 128, Blk. 29, W.&N.W. R.R. Sur. — Drlg. 253 ft.

Coyle & Concord Oil Co.'s No. 6 D. Roberts, 1,650 ft. S and 150 ft. W of NE cor. Sec. 156, Blk. 29, W.&N.W. R.R. Sur. — Shut down 1,899 ft.

Cranfill & Reynolds' No. 1 Kloh-Rumsey, 353 ft. N and 150 ft. W of SE cor. Sec. 3, Blk. 32, Twp. 2s, T.&P.R.R. Sur. — Drlg. 1,210 ft.

Empire Gas & Fuel Co.'s No. 3 Clay, 1,315 ft. N and 1,570 ft. W of SE cor. Sec. 127, Blk. 29, W.&N.W. R.R. Sur. — Location.

F. H. E. Oil Co.'s No. 11-B Dora Roberts, 1,700 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. — Drlg. 1,980 ft.

F. H. E. Oil Co.'s No. 5-D Dora Roberts, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 136, Blk. 29 — Set 6-in. casing 2,930 ft.; shut down.

Green et al's No. 1 Slaughter, C SW Sec. 32, Blk. 31, Twp. 3n, T.&P.R.R. Sur. — Rig.

Group 1 Oil Co. & Marland Prod. Co.'s No. 1 Overton, 1,650 ft. N and 2,310 ft. W of SE cor. Sec. 5, Blk. 32, Twp. 2s, T.&P. Sur. — Set 8-in. casing 2,157 ft.

Group No. 1 & Marland Prod. Co.'s No. 5 Settles, 2,310 ft. S and 330 ft. E of NW cor. Sec. 133, Blk. 29, W.&N.W.R.R. Sur. — Drlg. 2,167 ft.

Group No. 1 & Marland Prod. Co.'s No. 6 Settles, 2,310 ft. N, 330 ft. E of SW Sec. 133, Blk. 29 — Rigging up standard tools 2,003 ft.

Group No. 1 & Marland Prod. Co.'s No. 7 Settles, 330 ft. S and E of NW cor. Sec. 133, Blk. 29, W.&N.W. R.R. Sur. — Drlg. 1,361 ft.

L. C. Harrison et al's No. 1 G. M. Podge Est., SE cor. Sec. 9, Blk. 30, Twp. 1s, T.&P. Sur. — Hole full salt water 1,475-1,505 ft.; top lime 1,825 ft.; show oil 2,972-74 ft.; hole full fluid 3,257 ft.; total depth 3,257 ft.; plugged back to 3,000 ft. to shoot.

Hyer & Yates' No. 3 Clay, 990 ft. S and 2,310 ft. W of NE cor. Sec. 165, Blk. 29, W.&N.W. Sur. — Total depth 1,864 ft.; cleaning out.

Hyer & Yates' No. 4 Clay, 990 ft. S and 1,650 ft. W of NE cor. Sec. 155, Blk. 29 — Set 6-in. casing 1,557 ft.

Humble Oil & Ref. Co.'s No. 1 H. R. Clay, 990 ft. S and 330 ft. E of NW cor. Sec. 138, Blk. 29, W.&N.W. Sur. — Drlg. 2,380 ft.

Humble Oil & Ref. Co.'s No. 2 Clay, 330 ft. N and 2,310 ft. E of SW cor. Sec. 138, Blk. 29, W.&N.W. R.R. Sur. — Shut down 1,552 ft.

Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. — Rigging up standard tools 2,927 ft.; shut down.

Magnolia Pet. Co.'s No. 18 D. Roberts, 405 ft. N and 330 ft. E of SW cor. Sec. 135, Blk. 29, W.&N.W. R.R. — Drlg. 1,015 ft.

Marland Prod. Co.'s No. 3 Clay-F, 250 ft. S and 660 ft. W of NE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. — Rigging up standard tools 2,414 ft.

Marland Prod. Co.'s No. 4 Chalk-C, 990 ft. W, 330 ft. S of NE cor. Sec. 140, Blk. 29, W.&N.W.R.R. Sur. — Rigging up.

Marland Prod. Co.'s No. 7 Clay, 990 ft. S and W of NE cor. Sec. 155, Blk. 29, W.&N.W.R.R. Sur. — Drlg. 1,843 ft.

Marland Oil Co.'s No. 8-A Settles, 2,310 ft. N and E of SW cor. Sec. 158, Blk. 29, W.&N.W. Sur. — Location.

Midwest Exp. Co.'s No. 2 Clay-C, 330 ft. N and 1,650 ft. W of SE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. — Hole full oil 1,804 ft.; will shoot.

Midwest Exploration Co.'s No. 3 Clay-C, 330 ft. N and 990 ft. W of SE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. ... Shut down 800 ft.

Moody Oil Co.'s No. 15 Roberts-B, 2,310 ft. S and 380 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. ... Drlg. 2,347 ft.

Moody Oil Corp.'s No. 13 D. Roberts, 2,310 ft. S and 2,260 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. ... Location.

Moody Oil Corp.'s No. 10 Roberts-E, 2,310 ft. S and 280 ft. W of NE cor. Sec. 136, Blk. 29, W.&N.W.R.R. Sur. ... Drlg. 2,329 ft.

Merrick & Bristow's No. 8 Dora Roberts, 990 ft. N and 330 ft. E of SW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ... Cem. 8¼-in. 1,929 ft.; drlg. 2,150 ft.

Merrick & Lamb's No. 7 Clay, 250 ft. N and 1,535 ft. W of SE cor. Sec. 126, Blk. 29, W.&N.W.R.R. Sur. ... Set 8-in. casing 1,000 ft.; set 6-in. casing 1,619 ft.; drlg. 1,745 ft.

Plymouth Oil Co.'s No. 2 Kloh et al, 990 ft. S and 1,650 ft. W of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P. R.R. Sur. ... Location.

Plymouth Oil Co.'s No. 3 Kloh et al, 1,650 ft. S and 990 ft. E of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P. R.R. Sur. ... Location.

Schermerhorn Oil Co.'s No. 4 Roberts-A, 2,304 ft. S and 2,306 ft. W of NE cor. Sec. 137, Blk. 29, W.&N.W. R.R. Sur. ... Drlg. 2,983 ft.

Schermerhorn Oil Co.'s No. 5 Roberts-A, 1,650 ft. S and 2,250 ft. W of NE cor. of Sec. 137, Blk. 29, W.&N.W. Sur. ... Shut down 2,160 ft.

Shell Pet. Corp.'s No. 1 Settles, 990 ft. E and 330 ft. N of SW cor. Sec. 135, Blk. 29. ... Cem. 8¼-in. casing 2,141 ft.; shut down 2,950 ft.

Superior Oil Co.'s No. 14 Dora Roberts-B, 2,310 ft. E and 380 ft. S of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ... Location.

Superior Oil Co.'s No. 15 Dora Roberts-B, 2,310 ft. S and 380 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. R.R. Sur. ... Drlg. 2,347 ft.

Ward Oil Co.'s No. 3 Dora Roberts, 2,310 ft. N and E of SW cor. Sec. 137, Blk. 29 ... Set 6-in. casing 2,951 ft.; preparing to pump; total depth 2,980 ft.

Ward Oil Co.'s No. 5 Roberts, 1,650 ft. N and 330 ft. E of SW cor. Sec. 137, Blk. 29 ... Shut down 2,970 ft.; preparing to pump.

Witherspoon et al's No. 2 Kloh-Rumsey, 280 ft. N and 3,315 ft. E of SW cor. Sec. 3, Blk. 32, Twp. 2s, T.&P. R.R. Sur. ... Drlg. 1,678 ft.

HUDSPETH COUNTY

American Land Co.'s No. 1 Lockhart & Roseborough, C SE Sec. 5, School Blk. 21 ... Total depth 260 ft.; shut down; tools moved off.

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor. Sec. 19, Blk. E ... Set 16-in. casing 591 ft.; total depth 624 ft.; shooting crooked hole.

Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T. &C. Sur. ... Straightreaming 2,700 ft.; total depth 2,865 ft.; fishing job.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18 ... Hole full water 2,945 ft.; underreaming 8¼-in. casing at 2,840 ft.; trying to get water shut off; shut down 3,140 ft.; trying to pull casing.

IRION COUNTY

Fuhrman Pet. Co.'s No. 1 J. O. Suggs, Lease 1, C SE Sec. 3,024, Blk. 24, H.&T.C. Sur. ... Location.

Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 2, C SW Sec. 3,009, Blk. 24, H.&T.C. Sur. ... Location.

Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 3, C SE Sec. 3,009, Blk. 24, H.&T.C. Sur. ... Drlg. 1,920 ft.

Kimbrough & Flinchbaugh's No. 1 Tankersley, 160 ft. S and 200 ft. W of NE cor. Sec. 712, Ford W.Hlg Sur. ... Drlg. 167 ft.

Kimbrough & Tuel's No. 1 J. M. Nutt, 1,920 ft. S. 200 ft. E of NW cor. Sec. 5, Gonzales Co. School Land ... Set 6-in. casing 1,360 ft.; show oil and gas; shut down 1,400 ft.

Pecos Valley Oil Co.'s No. 1 Stocks, 2,500 ft. N and 1,250 ft. W of SE cor. Sam Wallstein Sur. No. 746 ... Drlg. 1,000 ft.

Signal Oil Co.'s No. 2 Suggs, 5,240 ft. from N line and 996 ft. from W line, Sec. 23, Blk. 27, H.&T.C. Sur. ... Top salt 760 ft.; set 15-in. casing 1,360 ft.; underreaming 1,925 ft.

Sun Oil Co.'s No. 1 Tankersley, 2,128 ft. N and 1,173 ft. E of SW cor. Sec. 8, G.C.&S.F. Sur. ... Drlg. 1,290 ft.

F. E. Webb et al's No. 1 J. M. Nutt ... Shut down 3,240 ft.

Wesley West et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur. ... Top pay 3,368 ft.; swabbed 35 bbls. oil and 40 bbls. water; 35.8 gravity oil; show oil 5,480-83 ft.; show oil 5,660-70 ft.; shut down 5,875 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means, 1,622 ft. N line, 600 ft. W line Sec. 345, H.&T.C. Sur. ... Show gas 3,271 ft; fresh wtr. 4,000-05 ft.; U.R. 5 3/16-in. csg.

JONES COUNTY

Anna Belle Oil Co.'s No. 1 Bickley, 330 ft. S and E of NW cor. SE NE Sec. 50, Blk. 18, T.&P. Sur. ... Rig.

E. P. Campbell et al's No. 2-C Herndon, 330 ft. N and E of SW cor. NW, Sec. 6, M.E.P.&P. Sur. ... Fish. 2,408 ft.

Cosden & Co.'s No. 1 Brown, 200 ft. N and 300 ft. W of SE cor. J. H. Grayson Sur. ... Fishing 2,530 ft.

Cosden & Herbert Oil Co.'s No. 1 Bickley, 320 ft. N and 319 ft. E of SW cor. S half NW Sec. 50, Blk. 18, T.&P. Sur. ... Rig.

Cosden-Herbert et al's No. 3 Bickley, 320 ft. N and W of SE cor. of S half NW Sec. 50, Blk. 18 ... Rig.

Cosden & Herbert Oil Co.'s No. 6 Bickley, 330 ft. S and 319 ft. E of NW cor. S half NW of Sec. 50, Blk. 18, T.&P. Sur. ... Fishing 2,310 ft.

P. K. French's No. 1 Lieson, 150 ft. N and E of SW cor. of E half NW Sec. 31, Blk. 14, T.&P.R.R. Sur. ... Location.

Grisham & Hunter Corp.'s No. 1 Hester, 330 ft. N and E of SW cor. of E half, Lot 12, Kratz Sur. A-247 ... Rig.

Grisham & Hunter's No. 1 Turner, 311 ft. N and 330 ft. W of SE cor. Gabriel Zumwalt Sur. ... Show oil 2,526 ft.; total depth 2,541 ft.; cleaning out.

Humble Oil & Ref. Co.'s No. 1 Bickley, 330 ft. N and 200 ft. E of SW cor. of N half of S half of SW Sec. 50, Blk. 18, T.&P.R.R. Sur. ... Rig.

Marland Prod. Co.'s No. 7 Mason, 330 ft. S and 990 ft. W of NE cor. S half NE Sec. 18, Blk. 19, T.&P. Sur. ... Drlg. 2,316 ft.

Mid-Sun Oil Corp.'s No. 1 George Hoehn, 660 ft. N and W of SE cor. SE 40 ac. of N 160 ac. of W 320 ac. of A Crain Sur. A-162 ... Drlg. 2,407 ft.

McClanahan et al's No. 1 Hall, 150 ft. N and E of SW cor. of Hall 220-acre tract, C.&M.R.R. Co. Sur. ... 100 ft. oil; drlg. 1,650 ft.

McGinley Corp.'s No. 1 Whittemore, 660 ft. N and W of SE cor. SE NE Sec. 39, B.B.B.&C. ... Fishing 1,335 ft.

McMan Oil & Gas Co.'s No. 2 Bickley, 330 ft. N and E of SW cor. of NE Sec. 50, Blk. 18, T.&P.R.R. Sur. ... Drlg. 850 ft.

McNeeley et al's No. 1 Roscoe Bland, 1,175 ft. N and 240 ft. W of SE cor. Subdivision 20, A-164, DeWitt Co. School Land. ... Spudded and shut down.

Phillips Pet. Co.'s No. 6 Mason, 330 ft. S and 300 ft. W of NE cor. W half of NE Sec. 18, Blk. 19, T.&P. Sur. ... Drlg. 2,265 ft.

Roberts Oil Corp.'s No. 8 Grayson, 2,083 ft. N and 336 ft. W of SE cor. of their lease out of Sec. 13, Blk. 19, T.&P. ... S.D. 2,516 ft.

Roeser-Pendleton & Landreth Prod. Co.'s No. 4 Grayson-A, 315 ft. S and 590 ft. W of NE cor. their lease out of Sec. 13, Blk. 19, T.&P.R.R. Sur. ... Drlg. 2,420 ft.

Sedgwick Oil & Gas Co.'s No. 1 Rouch, 1,250 ft. N. 2,500 ft. W SE cor. 299-acre tract, Austin & Williams Sur. 355-A-7 ... Drlg. 1,725 ft.

Sedgwick Oil & Gas Co.'s No. 1 Brown, 660 ft. N and 1,320 ft. E of SW cor. Sec 9, Blk. 1, T.&N.O. Sur. ... Location.

Snowden & McSweeney's No. 6 Bickley, 330 ft. N and 319 ft. E of SW cor. N half Sec. 50, Blk. 18, T.&P. R.R. Sur. ... Drlg. 2,495 ft.

The Texas Company's No. 2 Camp, 2,829 ft. N and 323 ft. W of SE cor. Camp 189.5-acre lease Sec. 13, T.&P. Sur., Blk. 19 ... Location.

The Texas Company's No. 6 Carter, 200 ft. S and W of NE cor. of L. Carter 173.5-ac. tract out of Sec. 13, Blk. 19, T.&P. ... Rig.

U. L. Tomberlin's No. 1 Horn, 1,980 ft. N and 600 ft. E of SW cor. of 502 ac. of Penney Sur. A-283. ... Spudded and shut down.

W. D. Wells et al's No. 1 Britton, 150 ft. N and 890 ft. E SW cor. 640-ac. tract, H.&W. Sur. 354-355 ... Location.

White Eagle Oil & Ref. Co.'s No. 1 W. B. Teague, 933 ft. N and W of SE cor. Sec. 30, Austin & Williams Sur. No. 339 ... Location.

LOVING COUNTY

Lockhart & Co.'s No. 1 R. A. Cox et al, 600 ft. S and 1,980 ft. W of NE cor. Sec. 20, Blk. 26, T.&P. Sur. ... Location.

Lockhart & Co.'s No. 1 Hazell, 2,792 ft. SW of NE line and 660 ft. NW of SE line Sec. 84, Blk. 33, E.&T.C. R.R. Sur. ... Rigging up standard tools.

Lockhart & Co.'s No. 1 H. L. Lepp, 330 ft. each way from S cor. of Sec. 3, Blk. 2, W.&N.W. Sur. ... Top salt 715 ft.; drlg. 2,400 ft.

Lockhart & Co.'s No. 1 Hubbard, 2,640 ft. NE and 660 ft. NW Sec. 84, Blk. 33, H.&T.C.R.R. Sur. ... Top salt 700 ft.; total depth 2,627 ft.; 31 degree gravity oil, some water.

Lockhart & Co.'s No. 2 Hubbard, 1,660 ft. from NE line and 330 ft. from SE line of Sec. 83, Blk. 33, H.&T.C.R.R. ... Rig.

Lockhart & Co.'s No. 1 Johnson, 660 ft. S and 1,980 ft. W of NE cor. Sec. 20, Blk. 58, Twp. 1, T.&P. R.R. Sur ... Location.

Lockhart & Co.'s No. 1 Wheat-E, 990 ft. from NE and SE lines Sec. 85, Blk. 33, H.&T.C.R.R. Sur. ... Rig.

MITCHELL COUNTY

Magnolia Pet. Co.'s No. 6 Foster, 1,980 ft. N and E of SW cor. Sec. 17, Blk. 29, Twp. 1s, T.&P.R.R. Sur. ... Drlg. 1,685 ft.

Simms Pet. Co.'s No. 1 Elwood, C SE of Sec. 29, Blk. 18, S.P.R.R. Sur. ... Rebuilding rig; 2,000,000 ft. gas; set 12-in. casing 604 ft.; cem. casing 780 ft.

Texas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur. ... Four bailers salt water per hr. 3,405 ft.; drlg. 3,500 ft.

NOLAN COUNTY

L. G. Bradstreet et al's No. 1 Kuteman, C NW Sec. 95, Blk. X, T.&P. Sur. ... Rig.

C. M. Root et al's No. 1 Martin, 330 ft. N and E of SW cor. NW Sec. 30, Blk. 19, T.&P.R.R. Sur. ... Rigging up.

C. M. Root et al's No. 1 Simpson, 330 ft. S and W of NE cor. SE Sec. 33, Blk. 19, T.&P. Sur. ... Oil shows 2,840 ft.; drlg. 3,031 ft.

PECOS COUNTY

Alexander & Lyle's No. 1 Myrtle Sellman, C SW SE Sec. 20, Blk. Z, T.S.Ry. Sur. ... Top salt 814 ft.; top lime 1,60[illegible] ft.; 3,400,000 ft. gas from 1,81[illegible]-26 ft.; spraying very little oil; sulphur water 1,652 ft.; shut down 1,655 ft.

Atlantic O. P. Co.'s No. 1 Trees, 330 ft. from N and 990 ft. from W line Sec. 198, Blk. 8, H.&T.C.R.R. Sur. ... Location.

M. H. Black's No. 1 A.O. Co., 2,310 ft. from SE and 1,650 ft. from SW lines Sec. 22, Blk. 10, H.&G.N. Sur. ... Location.

H. R. Bell et al's No. 1 Gray, 150 ft. from S and 2,490 ft. from W line Sec. 593, G.C.&S.F.R.R. Sur. ... Location.

Buell & Hagan's No. 1 University-B, 330 ft. N and 2,310 ft. W of SE cor. Sec. 36, Blk. 18, University Land ... Location.

Cowboy Evans' No. 1 Pecos Valley, 2,310 ft. from NW line, 990 ft. from SW line of Sec. 36, Blk. 3, H.&T.C. R.R. Sur. ... Location.

Crowley's No. 1 Heiner, 2,400 ft. each way from N and E lines Sec. 589, G.C.&S.F.R.R. Sur. ... Shut down 360 ft.

California Co.'s No. 2 Smith, Lease 5, Sec. 16, 1,550 ft. from W and 200 ft. from N line Blk. 194, G.C.&S.F. R.R. Sur. ... Location.

M. C. Dibble & Hale's No. 1 Bonebrake, Sec. 115, Blk. 8, H.&G.W. Sur., elev. 2,555 ft. ... Top lime 1,305 ft.; set 6-in. casing 1,610 ft.; pulling 8¼-in. casing; total depth 2,004 ft.

Ditto Oil Co.'s No. 1 J. M. Montgomery, Sec. 104, Blk. 331, A-16,387 ... Shut down 660 ft.

Geyer & Frates' No. 1 Smith, 1,320 ft. each way from N and E lines Sec. 8, Blk. 145, T.&St.L.R.R. Sur. ... Location.

Grayburg Oil Co.'s No. 1 University, 990 ft. S and 330 ft. W of NE cor. Sec. 2, Blk. 17, University ... Drlg. 840 ft.

Gulf Prod. Co.'s No. 16 Smith-B, 990 ft. S and 990 ft. E of NW cor. Sec. 22, Blk. 194, G.C.&S.F.R.R. Sur. ... Fishing 715 ft.

Imperial Oil & Gas Co.'s No. 1 Pecos Valley Oil Co., 990 ft. from SE line and 1,650 ft. from SW line Sec. 22, Blk. 10, H.&G.N.R.R. Sur. ... Location.

Marland Prod. Co.'s No. 1 Blakeslee, 330 ft. N of middle of S line Sec. 100, Blk. 8, H.&G.N. ... Underreaming 1,380 ft.

Matador Oil Co.'s No. 3 Smith, 2,310 ft. from N and 990 ft. from E lines, Sec. 24, Blk. 194, G.C.&S.F.R.R. Sur. ... Moving in machine.

Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur. ... Shut down 1,010 ft.

McCarty Oil Co.'s No. 1 A. A. Gray, 1,520 ft. from S and 150 ft. from W lines Sec. 591, Abst. 3,010 ... T.D. 1,170 ft; top pay 1,152 ft; hole full fluid; pulling casing.

McMan Oil & Gas Co.'s No. 5 Smith-C, 2,600 ft. S and 1,740 ft. from W line of Sec. 25, Blk. 194, G.C.&S.F. ... Drlg. 705 ft.

Mid-Kansas Oil & Gas Co.'s No. 5 Smith, 250 ft. S and 6,821 ft. E of NW cor. of Sec. 31, Blk. 194, G.C.&S.F. R.R. Sur. ... Drlg. 650 ft.

Mid-Kansas Oil & Gas Co.'s No. 26 Yates, 1,312 ft. N from most southerly N line, 1,388 ft. E from most westerly E line Sec. 32, Blk. 194, G.C.&S.F.R.R. Sur. ... Location.

Pecos Valley Oil Co.'s No. 2 fee, 1,620 ft. from SW and 1,320 ft. from NW Sec. 22, Blk. 10, H.&G.N.R.R. Sur. ... Top salt 1,107 ft.; total depth 1,625 ft.; flowing 80 bbls. day; will deepen.

Perrin et al's No. 1 Eaton, 150 ft. each way from NE and NW lines Sec. 27, Blk. 3, E.&T.C. Sur. ... Rigging up.

Phillips Pet. Co.'s No. 1 Ramsey, 990 ft. from N and E lines, Sec. 17, Blk. 194, G.C.&S.F. Sur. ... Drlg. 1,070 ft.

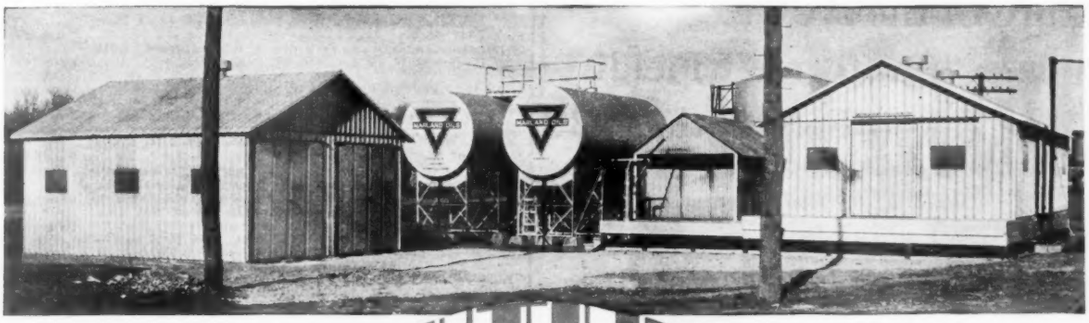
Stein & McGee's No. 1 Louis Paterson, 150 ft. SE of NW line, 150 ft. NE of SW Sec. 34, Blk. 10, H.&G.N. ... Location.

B. J. Spikes' No. 1 George Brown ... Shut down 700 ft.

Schumaker et al's No. 1 Williams et al, 330 ft. N of middle of S line Sec. 1, Blk. 117, G.C.&S.F. ... Shut down 700 ft.

Southern C. O. P. Co.'s No. 1 Scharbauer Cattle Co., SW cor. Sec. 21, Blk. 134, T.&S.L. Sur. ... Show gas 1,455-60 ft.; water 2,17[illegible] ft.; drlg. 3,861 ft.

Complete Bulk Stations



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FOR nearly 30 years the Butler line of oil equipment has been growing apace with the oil industry. Today the house of Butler is widely patronized as a dependable source of supply for all the major items necessary for the installation of bulk stations and for certain types of filling stations. As a matter of fact—Butler service begins with welded and bolted tanks for the oil fields and refineries and finishes with the visible pumps which convey oil to its final destination —the motor car gas tank.

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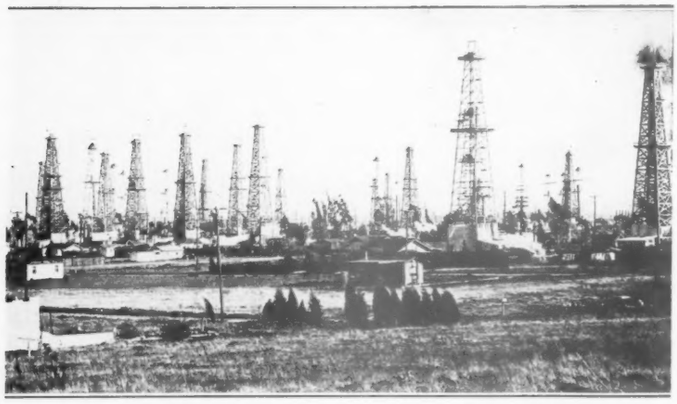
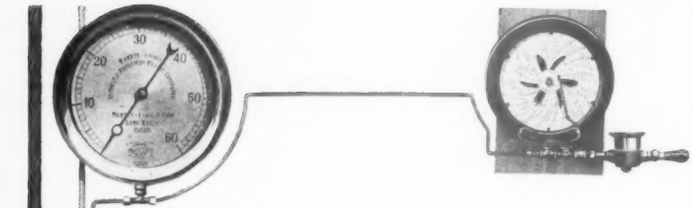


This Picture of the New Lawndale "California" Field Was Taken Feb. 26th, 1929



On February 26th there were 58 wells being drilled by 19 different operators in the new Lawndale, California, field. 56 *of these drilling wells were equipped with Martin-Loomis Automatic Recording Weight Indicators!*

Probably no other item of oil well equipment has ever set and consistently maintained as high a record for universal acceptance as the Weight Indicator.

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As for accuracy, dependability, and performance of the Weight Indicator, ask any driller who is using one. May we tell you more about it?

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WEIGHT RECORDING, MEASUREMENT AND CONTROL

Talbot & Dittman's No. 1 Unsicker, 1,320 ft. from E and 660 ft. from S lines, Sec. 25, Blk. 10, H.&G.N. ..... Shut down 1,509 ft.; flowing sulphur water.

Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18 ..... Top lime 1,155 ft; straighten crooked hole 4,199 ft.

Trees Oil Co.'s No. 1 Trees, 330 ft. from N and E lines of Sec. 63, Blk. 8 ..... Spud.

World Oil Co.'s No. 1 Kloh, Sec. 47, Blk. 45, Twp. 8, T.P.R.R. Sur., elev. 2,810 ft. ..... Shut down 3,105 ft.

PRESIDIO COUNTY

L. C. Brite's No. 2 Brite, 2,500 ft. N. 2,200 ft. W of SE cor. Sec. 51, Blk. 12, G.H.&S.R. Sur. ..... Location.

Phillips Pet. Co., Empire G. & F. Co., Delmar Oil Co. and C. E. Miller's No. 1 Tootle Est., C NE Sec. 75, Blk. 3, D.&P.R.R. Sur. ..... Show wet gas 1,270 ft; dry 2,365 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor. Sec. 1, Blk. 2, University Land.. Shut down 510 ft. for 22-in. pipe.

The California Co.'s No. 5 University, 2,310 ft. from N and E lines Sec. 16, Blk. 7, University Land ..... Top salt 1,280 ft.; underreaming 2,918 ft.

Kemrow Co.'s No. 1 Sawyer Cattle Co., 1,320 ft. from N and 1,980 ft. from E line Sec. 8, J. G. Robinson Sur. ..... Location.

R. V. Oberholtzer's No. 1 Talley, 1,650 ft. each way from S and W lines Sec. 6, G.C.&S.F.R.R. Sur. ..... Drlg. 180 ft.

Texon O. & L. Co.'s No. 1-B University Group 1 ..... Top pay 6,250 ft.; hole full of oil; well made two small heads oil sand 8,482 ft.; total depth 8,525 ft.; flowing 2,050 bbls. daily.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ..... Total depth 2,900 ft.; shut down

Southern Crude O. P. Co.'s No. 1 Kloh-Rumsey, 2,310 ft. N and W SE cor. Sec. 23, Blk. 51 ..... Drlg. 470 ft., red rock; hole full water 470 ft.

David R. Thompson's No. 1 A. A. Eddins ..... Fishing casing 5,658 ft.

Robert Penn et al's No. 1 Bowles, 2,310 ft. SW of NE cor. Sec. 36, Blk. 50, Twp. 8, T.&P.R.R. Sur. ..... Top salt 1,725 ft.; drlg. 4,670 ft. anhydrite.

Lee O. White et al's No. 1 Kloh-Rumsey, 660 ft. S and E of NW cor. Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. ... Spudded and shut down.

RUNNELS COUNTY

Boyce et al's No. 1 E. O. Lange, 2,300 ft. S and 6,900 ft. W of NE cor. Austin & Williams Sur. No. 262 ..... Shut down 1,350 ft.

Foster et al's No. 1 Currie, 1,866 ft. SE of NW line, 335 ft. SW of NE line Gray Carroll Sur. ..... Shut down 360 ft.

R. D. Hamilton et al's No. 1 A. Spill, 1,320 ft. S and W of NE cor. A. Spill 891 acres, out of Thomas R. Webb Sur. 358 ..... Shut down 100 ft.

Independent Oil & Gas Co.'s No. 1 Will Rollwitz, 330 ft. S and W of NE cor. S half M. Salinas Sur. No. 20½.. Drlg. 200 ft.

Marland Prod. Co.'s No. 1 August Herring, 330 ft. S and 1,650 ft. W of NE cor. Sec. 39, E.T.R.R. Co. Sur... Drlg. 1,510 ft.

McLean et al's No. 1 G. W. Clayton, 150 ft. N line, 270 ft. from W line Sec. 135, E.T.R.R. ..... Shut down 1,185 ft.

Nourse & Tilton's No. 1 R. A. Stokes, 200 ft. S, 600 ft. E of NW cor. G.C.&S.F. Sur. No. 2 ..... Shut down 3,000 ft.

R. B. Summers et al's No. 1 J. W. Reese, M. J. Parramore Sur. 26 ..... Shut down 1,650 ft.

Union Oil Co. of Nevada's No. 1 W. E. Allen, 1,000 ft. N and W of SE cor. Sec. 1, H.E.&W.T. Sur. ..... Shut down 3,080 ft.

SCHLEICHER COUNTY

J. F. Long and O. C. Long's No. 1 W. H. Williams, NE cor. Sec. 28, H.E.&W.T.R.R. Sur ..... Shut down 275 ft.

SCURRY COUNTY

I. B. Mims et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur. ..... Spudded and shut down.

G. E. Dieckman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Drlg. 2,200 ft.

STERLING COUNTY

F. & G. Oil Co.'s No. 1 W. L. Foster, C SE Sec. 20, Blk. 12, S.P.R.R. Sur. ..... Show oil 1,296-98 ft. and 1,356-6 ft.; underreaming 2,173 ft.

George L. Miller's No. 1 Foster, 3,690 ft. S and 1,397 ft. W of NE cor. Sec. 4, Blk. 31, T.&P. Sur. ..... Set 12½-in. casing 830 ft.

SUTTON COUNTY

Phillips Pet. Co.'s No. 1 A. G. Holman, 2,310 ft. S and 330 ft. W NE cor. Sec. 25, G.C.S.D.&N.G.R.R. Sur. ... Drlg. 5,890 ft.

L. G. Priest's No. 1 Allison, 1,320 ft. N and E of SW cor. Sec. 52, Blk. A, T.&P. Sur. ..... Shut down 300 ft.

Southern C. O. P. Co.'s No. 1 Allison, 2,310 ft. S and 320 ft. W of NE Sec. 41, Blk. K, G.H.&S.A. Sur. ..... Drlg. 3,150 ft.

TAYLOR COUNTY

Grisham-Hunter Corp.'s No. 1 Campbell, 330 ft. S and E of NW cor. SW Sec. 65, Blk. 19, T.&P. Sur. ..... Drlg. 2,330 ft.

V. B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor. Sec. 46, Lunatic Asylum Land ..... Rig.

Mid-Continent Oil & Gas Co.'s No. 1 Taylor, 990 ft. W 215 ft. N SE cor. 100-ac. tract, Sec. 18, Guadalupe School Land Sur. ..... 300 ft. oil 2,384-87 ft; 2,445-50 ft. swabbed 5 bbls.; drlg. 2,578 ft.

Wentz Oil Corp.'s No. 1 Armour, 375 ft. N and 330 ft. W of SE cor. W half Sec. 16, Blk. 6, S.P.R.R. Sur. .... Drlg. 1,410 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T.R.R. Sur. ..... Spudded and shut down.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.&R.R. Sur. ..... Shut down 1,749 ft.

Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 78, Blk. D-7, E.L.&R.R. Sur. ..... Location.

Milham Exploration Co.'s No. 1 Bassett, Sec. 76, Blk. Y, W. E. Robertson Sur. ..... Cem. 6⅝-in. casing 3,986 ft.; fishing 4,640 ft.

Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ..... Shut down 150 ft.

TERRY COUNTY

Kingsland O. & P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur. ..... Fishing bailer 5,080 ft.

TOM GREEN COUNTY

Collins et al's No. 1 Jones, CSL Sec. 646, Shaffer Sur. ... Shut down 1,800 ft.

Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ringer ..... Shut down 1,920 ft.

F. P. Green et al's No. 1 fee, 575 ft. from N and 1,450 ft. from W lines Sec. 165, District 11, S.P.R.R. Co. Sur. ..... Shut down 1,931 ft.

Williams et al's No. 1 Willeke, 2,500 ft. N and 75 ft. E of SW cor. Sec. 3, Deaf & Dumb Asylum Land ..... Cleaning out 400 ft.

UPTON COUNTY

Wentz Oil Co.'s No. 5 Shirk, 2,310 ft. N and 1,650 ft. W of SE cor. Sec. 35, Blk. 1, M.-K.-T.R.R. Sur. ..... Top salt 815 ft.; total depth 1,8 ft.; fishing.

YOAKUM COUNTY

Weekley Oil Corp.'s No. 1 Knight, C NW Sec. 791, Blk. D, John Gibson Sur. ..... Drlg. 625 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Drlg. 4,840 ft.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,210 ft.

Producers Oil Co. et al's No. 1 Everett Bros., 2,310 ft. S and 330 ft. E of NW cor. Sec. 40, Blk. DB, C.C.S.D.&R.G.N.G. Sur.	Underreaming 2,115 ft.
Dyar Bros. et al's No. 1 Wilson, 6,830 ft. N NE cor. Sec. 1, T.&P. Sur., thence 1,680 ft. E Sec. 115, Blk. E, G.C.&S.F. Sur.	Show oil and gas 1,053 ft; S.D. 2,720 ft.
Valvert Oil Corp.'s No. 1 Bassett, C NE Sur. 47, Blk. Y	Set 15½-in. casing 767 ft.; set 10-in. csg. 1,510 ft; fish. 3,600 ft.
WARD COUNTY	
Gulf Prod. Co.'s No. 4 O'Brien et al, C NW SW Sec. 19, Blk. F, G.M.M.&M.A. Sur.	Set 15½-in. casing 475 ft.; drlg. 525 ft.
J.H.L. Oil Co.'s No. 2 Hayzlett, 1,100 ft. from SW and 220 ft. from SE line Sec. 17, Blk. 5, H.&T.C.	Rigging up standard tools.
E. B. Lovelace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162, Blk. 34, H.&T.C.R.R.	Shut down 550 ft.; pulling pipe.
WINKLER COUNTY	
Amerada Pet. Corp.'s No. 2 Daugherty, NW cor. NE SE Sec. 3, Blk. 74	Top lime 2,854 ft.; top pay 3,225 ft.; shut down 3,242 ft.
American Maracaibo Co.'s No. 2 Hendricks-B, 1,980 ft. N and 1,650 ft. E of SW cor. Sec. 28, Blk. B-5	Rig.
Atlantic O. P. Co.'s No. 5 Hendricks, 1,320 ft. S and 2,310 ft. W NE cor. Sec. 44, Blk. 26	Location.
Barnsdall Oil Corp.'s No. 2 Tobe Morton, 1,650 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12	Cem. 8¼-in. 2,758 ft.; top lime 2,571 ft; cmtng. 8¼-in csg. 2,758 ft.; drlg. 2,769 ft.
Barnsdall Oil Corp.'s No. 3 Tobe Morton, 990 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12	Cellar.
Empire Gas & Fuel Co.'s No. 1-B Daugherty, 2,310 ft. S and 990 ft. W of NE cor. Sec. 3, Blk. 74	Top lime 2,823 ft.; oil and gas show at 3,165 ft.; drlg. 3,378 ft.; flowing 15,000 bbls. daily; cem. 6⅝-in. casing 3,382 ft.; total depth 3,424 ft.; lowering 6-in. casing to shut off water.
Gulf Prod. Co.'s No. 4 Cowden, 495 ft. N and 330 ft. E of SW cor. of 240-ac. lease, Sec. 3, Blk. B-12	Top lime 2,524 ft; cmtng. 8¼-in. csg. 2,529 ft.
Gulf Prod. Co.'s No. 2 Hendricks, 1,330 ft. N and 330 ft. W of SE cor. NW Sec. 44, Blk. 26, School Land	Top lime 2,837 ft.; cem. 6⅝-in. casing 2,839 ft.; init. prod. 800 bbls. daily.
Humble Oil & Ref. Co.'s No. 5 Hendricks-C, 2,200 ft. N and 2,310 ft. E of SW cor. Sec. 10, Blk. B-12	Top lime 2,620 ft.; total depth 3,067 ft.; flowing 4,000 bbls. daily, 95 per cent water.
Humble Oil & Ref. Co.'s No. 6 Hendricks-C, 1,320 ft. N and 2,310 ft. E of SW cor. Sec. 10, Blk. B-12	Top lime 2,610 ft.; cem. 6⅝-in. 2,615 ft.; drlg. 3,010 ft.
Humble Oil & Ref. Co.'s No. 7 Hendricks-C, 440 ft. S and 990 ft. E of NW Sec. 10, Blk. B-12	Cem. 10-in. 190 ft.; top lime 2,427 ft.; total depth 2,873 ft.; 200 bbls. daily, 3 per cent water.
Humble O. & R. Co.'s No. 9 Hendricks-C, Lease No. 2, 1,320 ft. N and 330 ft. E of SW cor. Sec. 10, Blk. B-12	Top lime 2,498 ft.; cem. 6⅝-in. casing 2,509 ft.
Humble O. & R. Co.'s No. 10 Hendricks-C, Lease 2, 2,230 ft. S and 330 ft. E of NW cor. Sec. 10, Blk. B-12	Location.
Independent Oil & Gas Co.'s No. 3-B Hendricks, NW W half SE Sec. 44, Blk. 26	Top lime 2,810 ft; cmtng. 8¼-in. casing 2,809 ft.; rigging up standard tools.
Prairie O. & G. Co.'s No. 2 Daugherty, 330 ft. S and 990 ft. E of NW cor. Sec. 16, Blk. 74	Location.
Prairie Oil & Gas Co.'s No. 1 Scarborough, 990 ft. N and 1,650 ft. W of SE cor. Sec. 1, Blk. C-22	Cem. 12½-in. casing 260 ft.; top salt 1,400 ft.; drlg. 2,450 ft.
Pure Oil Co.'s No. 1 Hendricks, NE SW Sec. 44, Blk. 26	Set 12½-in. csg. 896 ft; cmtng. 8¼-in. casing 2,843 ft.; top lime 2,841 ft.; drlg. 2,870 ft.
Shell Pet. Co.'s No. 5 Scarborough, 330 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. C-22	Top salt 1,110 ft.; drlg. 1,685 ft.
Skelly Oil Co.'s No. 1 Leck, 440 ft. N and 330 ft. E of SW cor. Sec. 22, Blk. 26, School Land	Top lime 2,444 ft; cmtng. 8¼-in casing 2,450 ft.; rigging up standard tools.
Skelly Oil Co.'s No. 1 Morton, 2,310 ft. N and 165 ft. W of SE cor. Sec. 27, Blk. B-12, School Land Sur.	Cellar.
Skelly Oil Co.'s No. 2 Hendricks-C, 1,320 ft. N and 2,310 ft. W of SE cor. Sec. 10, Blk. B-12	Top lime 2,636 ft.; cem. 8¼-in. 2,642 ft.
Simms Oil Co. and Southwest O. P. Co.'s No. 1 George Sealey, 2,434 ft. S and 330 ft. W of NE cor. Sec. 50, Blk. F	Top lime 2,676 ft; oil show 2,845 ft; top pay 2,893 ft; drlg. 2,978 ft.; flowing 250 bbls. daily.
Southern Crude O. P. Co.'s No. 6 Hendricks T-67-3-A, 990 ft. S and 1,650 ft. W of NE cor. Sec. 4, Blk. B-12	Cmt. 12½-in. csg. 2,245 ft; drlg. 1,480 ft., anhydrite.
Southern Crude O. P. Co.'s No. 5 Hendricks T-67-F, 330 ft. N and 990 ft. W of SE cor. Sec. 33, Blk. B-5, School Land	Drlg. 2,286 ft., anhydrite.
Simms Pet. Co. et al's No. 2 Sealey, 2,434 ft. S and 990 ft. W of NE cor. Sec. 50, G.M.M.&A. Sur.	Rotary rig.
Southern Crude O. P. Co.'s No. 8 Hendricks T-88-C, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 28, Blk. B-5, School Land	Rig.
Southern Crude O. P. Co.'s No. 6 Hendricks T-88-K, 2,200 ft. S, 1,650 ft. W of NE cor. Sec. 41, Blk. 26	Rigging up rotary.
Southern Crude O. P. Co.'s No. 3 Hendricks T-88-O, 440 ft. S, 330 ft. W of NE cor. Sec. 28, Blk. 26	Bldg. rig.
Southern Crude O. P. Co.'s No. 2 Hendricks T-88-Q, 440 ft. S and 330 ft. E of NW Sec. 27, Blk. 26, School Land	Top lime 2,375 ft; cmtng. 8¼-in. csg. 2,387 ft.
Southern Crude O. P. Co.'s No. 1 Hendricks, T-88-CX, 440 ft. N and 330 ft. W of SE cor. Sec. 21, Blk. 26, School Land	Cem. 12½-in. casing 780 ft.; top lime 2,390 ft.; cem. 8¼-in. casing 2,402 ft.
Southern Crude O. P. Co.'s No. 7 Hendricks T-88-H, 2,310 ft. N and 990 ft. E of SW Sec. 28, Blk. B-5, School Land	Drlg. 675 ft.
Southern C. O. P. Co.'s No. 6 Hendricks T-88-D, 440 ft. N and 1,320 ft. W of SE cor. Sec. 4, Blk. B-12	Top lime 2,558 ft; cmtng. 8¼-in. casing 2,578 ft.; drlg. 2,658 ft.
Southern C. O. P. Co.'s No. 3 Hendricks T-89-J, 2,200 ft. N and 330 ft. W of SE cor. Sec. 9, Blk. B-12, School Land	Top lime 2,551 ft; cmtng. 8¼-in. casing 2,556 ft.; drlg. 2,679.
Southern Crude O. P. Co.'s No. 6 Hendricks T-89-J, 2,200 ft. S and 330 ft. W of NE cor. Sec. 9, Blk. B-12	Building rig.
Southern Crude O. P. Co.'s No. 7 Hendricks T-89-J, 1,540 ft. from N and 1,320 ft. from E lines Sec. 9, Blk. B-12	Rig.
Texas Canadian Oil Co.'s No. 1 Kloh-Rumsey, 1,320 ft. N and E of SW cor. Sec. 35, Blk. 46, T.&P.R.R. Sur.	Total depth 900 ft.; drlg. by tools.
Texon Oil & Land Co.'s No. 6 Grisham & Hunter-B, 1,320 ft. N and 990 ft. E of SW cor. Sec. 45, Blk. 26	Top lime 2,510 ft; cmtng. 8¼-in. casing 2,522 ft.; rigging up standard tools.

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Explaining Why Norris Brothers are the Largest Turnbuckle Manufacturers in the World Catering Exclusively to Oil Country Needs

NOR-BRO Oil Country Turnbuckles, like all other products of Norris Brothers, are made to serve but one industry—the Oil Industry. Born of long and practical oil field experience, they embody features of special advantage to oil country users.

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NOR-BRO
OIL COUNTRY TURNBUCKLES

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 39)

COCHRAN COUNTY

V. T. Bolin et als' No. 1 C. C. Slaughter, 1,650 ft. E and 660 ft. S of NW tract, League 118, Knox County School land ..... Rig and S.D.

COTTLE COUNTY

Explin. Co.'s No. 1 Richards ..... Drlg. 3,250 ft.
Explin. Co.'s No. 4 Matador Land & Cattle Co., C Sec. 46, J. H. Stephens Sur. ..... Fish. 3,217 ft.
Sun Oil Co.'s No. 1 T. B. Yarborough, 485 ft. S and 2,460 ft. E NW cor. Sec. 551, Block H, W.&N.W. Sur. C.O. 3,620 ft.

DONLEY COUNTY

Beaudoin et als' No. 1 Ball, 1,075 ft. from N line and 985 ft. from E line, Sec. 22, Blk. E, D.&P.R.R. Sur. Location.
Marine Oil Co.'s No. 1 Sawyer, C SW, Sec. 5, Blk. G, G.C.&S.F. Sur. ..... Bldg. rig.

GRAY COUNTY

Anderson et als' No. 1 Heltholt, C NE SW, Sec. 152, Blk. 3, I.&G.N. Sur. ..... Spud. and S.D.
B. S. Arnold's No. 1 J. E. Mingale, C E 160 ac., Sec. 212, Blk. B-2, H.&G.N. Sur. ..... S.D. 1,412 ft.
Arnold & Howell's No. 1 Turnex, C SW, Sec. 111, Blk. B-2 ..... S.D. 2,224 ft. for pipe.
Barnsdall Oil Corp.'s No. 1 M. B. Davis, NW cor. W½ SE, Sec. 9, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 1,976 ft.
Camel Oil Co.'s No. 1 Harrah-B, 330 ft. each way from NW cor. NE, Sec. 150, Blk. 3, I.&G.N. Sur. ..... Rig.
Crabtree Drlg. Co.'s No. 1 B. F. Talley, SW NE, Sec. 114, Blk. M-2, B.S.&F. Sur. ..... S.O. 2,400 ft; S.D. 2,735 ft.
Cockrell-McElroy et als' No. 1 McConnell, 330 ft. each way from NE cor. W½ SW, Sec. 174, Blk. 3, I.&G. N.R.R. Sur. ..... Spud.
Constantine et als' No. 1 Dial, 330 ft. S and E of NW cor. W½ NW, Sec. 32, Blk. 25, H.&G.N. Sur. ..... S.D. 2,415 ft.
Danciger et als' No. 1 Shaw, 1,000 ft. N and 330 ft. W SE cor. SW, Sec. 5, Blk. 1, A.C.H.&B. Sur. ..... 35,000,000 ft. gas 2,230 ft; show oil 2,610-13 ft; S.D. 2,645 ft.
Danciger et als' No. 1 J. E. Williams, 330 ft. each way from NE cor. NW SW, Sec. 6, Blk. 1, A.C.H.&B. Sur. Drlg. 2,321 ft.
Danciger et als' No. 1 Sheridan, SE cor. Sec. 184, Blk. B-2, H.&G.N.R.R. Sur. ..... Location.
Delmar Oil Co.'s No. 1 Chapman, 330 ft. each way from SE cor. NW, Sec. 10, Blk. 26, H.&G.N. Sur. ..... 35 bbls. 2,732-60 ft; H.F.W. 2,852 ft; to P.B.
Empire G. & F. Co.'s No. 1 A. R. Clay, NE cor. Sec. 185, Blk. B-2 ..... C.O. 3,288 ft; 300 ft. oil.
Eslick & McKinney's No. 1 Mrs. Hopkins, 330 ft. from NE E½ NE, Sec. 84, Blk. B-2, H.&G.N. Sur. ..... S.D. 2,865 ft.
Sines & Reiger's, formerly Eslick et als' No. 1 Mrs. J. A. Hopkins, NW cor. W 80 ac. of SW, Sec. 84, Blk. B-2, H.&T.C. Sur. ..... Pull 6-in. csg. 3,206 ft.
Gulf Prod. Co.'s No. 4 Holmes-A, 990 ft. N and 330 ft. E of SW cor. W½ SE, Sec. 87, Blk. 3, I.&G.N.R. R. Sur. ..... Drlg. 3,353 ft.
Gardner Bros. & Collins' No. 2 Saunders, 350 ft. from N on center line of W 68 of W½ of E½ of J. G. Eustis Sur. ..... Location.
Independent O. & G. Co.'s No. 1 Hottenbeck, 990 ft. each way from NE cor. NE, Sec. 176, Blk. 3, I.&G. N.R.R. Sur. ..... Location.
Magnolia Pet. Co.'s No. 1 Gething, 530 ft. each way from SE SW, Sec. 14, Blk. A-9, H.&G.N. Sur. ..... Drlg. 2,530 ft.
Malone et als' No. 1 Taylor, 990 ft. S and E of NW cor. NW, Sec. 22, Blk. B-2, H.&G.N. Sur. ..... 600 ft. oil top of G.W. 3,024 ft; crooked hole 3,075 ft.
Marland Prod. Co.'s No. 1 Brown-Finley, 330 ft. S and W of NE cor. Sec. 32, Blk. B-2, H.&G.N.R.R. Sur. ..... 51,000,000 ft. gas 2,785-90 ft; T.D. 2,815 ft.
McLain Oil Co.'s No. 1 Back, 1,000 ft. from W line and 330 ft. from N line, NW, Sec. 24, Blk. 25, H.&G. N. Sur. ..... S.D. 315 ft.
Midwest O. & G. Co.'s No. 1 Bower-B, 1,650 ft. from E and 330 ft. from N lines, Sec. 93, Blk. B-2, H.&G. N.R.R. Sur. ..... Drlg. 2,740 ft.
Nabob Oil Co.'s No. 2 Morse, 660 ft. from W line and 330 ft. from S line SW, Sec. 67, Blk. 25, H.&G.N. R.R. Sur. ..... Cellar.
Operators Oil Co.'s No. 3 Jackson, 330 ft. S and 990 ft. E of NW cor. N½ NE, Sec. 88, Blk. B-2, H.&G. N.R.R. Sur. ..... Drlg. 2,816 ft.
Parton & Holt's No. 1 Gething, 330 ft. each way from SE cor. NE, Sec. 14, Blk. A-9 ..... Drlg. 2,978 ft; S.O.
Phillips Pet. Co.'s No. 5 Johns, 330 ft. N and 990 ft. E of SW cor. SW, Sec. 87, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,200 ft.
Purple Sage Oil Co.'s No. 2 E. B. Johnson ..... 2,000,000 ft. gas; 200 ft oil 2,870 ft; shot with 510 qts. 2,775-2,872 ft; 400 ft. oil; S.D. 2,875 ft.
Republic Prod. Co.'s No. 1 G. H. Saunders, 330 ft. each way from SW cor. E½ NW cor. Sec. 4, Blk. 1, A. C.H.&B. Sur. ..... 25 bbls. 2,710-50 ft; T.D. 2,810 ft.
Schwald et als' No. 1 fee, 330 ft. each way from NE cor. E½ SW, Sec. 1, Blk. 1, A.C.H.&B. Sur. ..... Fish. 2,570 ft.
Shell Pet. Corp.'s No. 2 McConnell, 330 ft. S and E of NW cor. E½ SW, Sec. 174, Blk. 3, I.&G.N.R.R. Sur. Drlg. 300 ft.
St. Clair Oil Co.'s No. 1 Dial, 330 ft. S and W of NE cor. SE, Sec. 10, Blk. 25, H.&G.N.R.R. Sur. ..... Cellar.
St. Clair Oil Co.'s No. 1 Rowe, Sec. 32, Blk. R ..... Fish. 2,890 ft.
St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.
Southern Pet. Exp. Co.'s No. 3 McConnell, 1,650 ft. from W line and 330 ft. from S line NW, Sec. 174, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 740 ft.
The Texas Co.'s No. 6 Davis, 330 ft. S and 1,650 ft. W NE cor. NW, Sec. 86, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 2,100 ft.
The Texas Co.'s No. 5 A. Chapman, 1,138 ft. from W and 330 ft. from S lines, SE, Sec. 51, Blk. 25, H. &G.N. Sur. ..... 10 bbls. hourly 2,780-2,800 ft; to deepen.
The Texas Co.'s No. 1 Faulkner, 330 ft. each way from NW cor. Sec. 29, Blk. B-2, H.&G.N. Sur. ..... Location.
The Texas Co.'s No. 2 McLarty-B, at center of J. M. Rose Sur. ..... Rig.
The Texas Co.'s No. 10 Saunders, 330 ft. N and W of SE cor. W½ of J. G. Eustis Sur. ..... Drlg. 1,315 ft.
Travis et als' No. 2 Back, 330 ft. each way from NW cor. E½ SE cor. Sec. 44, Blk. 25, H.&G.N.R.R. Sur. Rig.
Travis et als' No. 1 J. S. Morse, SE NW SW, Sec. 68, Blk. 25, H.&G.N. Sur. ..... 30,000,000 ft. gas 2,592-2,610 ft; light spray oil 2,740-45 ft; to deepen.
Wilcox-Pampa Oil Co.'s No. 31 Worley Reynolds, 330 ft. N and E SW cor. SE SW, Sec. 61, Blk. 3, I.&G.N. S.O. 2,928 ft; drlg. 2,985 ft.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County school lands; elevation 3,363 ft.; contract depth 5,000 ft. ..... S.D. 1,455 ft.

HARTLEY COUNTY

Amarillo Oil Co.'s No. 9 Lee Bivins "A," C NW, Sec. 6, Blk. 21 ..... 15,000,000 ft. gas 3,300-35 ft; T.D. 3,601 ft; deepen.
Canadian River Gas Co.'s No. 10 Burns-A, 660 ft. N and 660 ft. E, Sec. 18, Blk. 2, G.&M. Sur. ..... Drlg. 870 ft.

HUTCHINSON COUNTY

Antelope Creek Oil Co.'s No. 3 Sanford, 330 ft. from N line and 330 ft. from W line of E½ S 160 ac. of Sec. 82, Blk. 46, H.&T.C. Sur. ..... Set 5-in. csg. 3,080 ft.
Amarillo Oil Co.'s No. 2 Ingerton-A, 1,650 ft. from N line, 1,071 ft. from E line Sur. 41, H.&T.C.R.R. Sur. Cellar.
Dunnigan et als' No. 1 C. W. Hugenbyhl, 330 ft. from S line and 330 ft. from E line, N½, Sec. 4, Blk. T. W.&N.G.R.R. Sur. ..... Swb. 8 bbls. oil and 1 bbl. w 3,130-35 ft; S.D. 3,155 ft.
Marland Prod. Co.'s No. 1 Johnson-C, 450 ft. S and W of NE cor. Sec. 5, Blk. 1, B.&B. Sur. ..... Drlg. 850 ft.
Oil Operators Trust Co. and Marland's No. 2 J. M. Stanford-B, Sec. 82, Blk. 46, H.&T.C. Sur. ..... S.D. 3,039 ft.
Phillips Pet. Co.'s No. 2 Jasper, 980 ft. from S line and 660 ft. from E line SE, Sec. 23, Blk. M-23, T.C.R. R. Sur. ..... Drlg. 2,405 ft.
Phillips Pet. Co.'s No. 3 Sanford-Garland, 330 ft. N and E of SW cor. Sec. 77, Blk. 46, H.&T.C. Sur. ..... Drlg. 2,330 ft.
Phillips Pet. Co.'s No. 16 Whittenburg, Sec. 63, Blk. 46, H.&T.C. Sur. ..... Drlg. 2,050 ft.
The Texas Corp.'s No. 2 Moore, 990 ft. from N line and 330 ft. from W line SW, Sec. 125, Blk. 4, I.&G.N. Sur. Spud.
Timms et als' No. 1 Moore, 330 ft. N and E of SW cor. S 40 ac. NW, Sec. 21, Blk. M-21, T.C.R.R. Sur. ..... S.D. 800 ft.

KING COUNTY

The Texas Co.'s No. 1 J. H. Johnson ..... S.D. 4,300 ft.
Huff Oil Co.'s No. 1 Martin, 1,320 ft. from N line and 1,320 ft. from E line Sec. 171, Blk. F, H.&T.C. Sur. Rig.

LAMB COUNTY

Dan Freel et als' No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... Spudded and S.D.

LIPSCOMB COUNTY

Brown et als' No. 1 Box T Ranch, SW NE, Sec. 612, H.&T.C. Sur. ..... S.D. 3,128 ft.
Ruby Oil Co.'s No. 1 C. W. Jones, NE SW, Sec. 100 H.&T.C. Sur. ..... Straightening crooked hole 428 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small show oil 1,133-40 ft; sa fish. 4,105 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 2 Warrick, C S 160 ac., Sec. 92, Blk. 46, H.&T.C. Sur. ..... Rig.
Canadian Gas Co.'s No. 1 Kilgore-A, 2,716 ft. S and 2,695 ft. W of NE cor. Sec. 1, Eustis Sur. ..... Drlg. 2,040 ft.
Devonian Oil Co.'s No. 1 Sneed, 330 ft. N and 2,335 ft. W of SE cor. of S 160 ac. of N 320 ac., M. Robinson Sur. ..... Drlg. 2,380 ft.
Dixie Creek Oil Co.'s No. 1-A Sneed, Jr., 330 ft. N and W of SE cor. E½, Sec. 65, Blk. 3, G.M. Sur. ..... 400 ft. oil 3,305-15 ft; H.F.W. 3,330 ft; P.B. to 3,316 ft; sh with 30 qts. 3,241-68 ft and qts. 3,283-3,316 ft; C.O.
Dixie Creek Oil Co.'s No. 4-A Sneed, Jr., 330 ft. S and W of NE cor. E½, Sec. 65, Blk. 3 ..... 10,000,000 ft. gas 2,825-55 ft; ft. oil 3,304-05 ft; H.F.W. 354 ft; P.B. to 3,336 ft; sh with 55 qts. 3,305-25 ft. a second shot 3,217-38 ft; C.O.
Fritch O. & G. Co.'s No. 1 Lee Burns, C NE 40 ac. of N 160 ac., Sec. 4, Geo. Mahan Sur. ..... Spudded and S.D.
McMan O. & G. Co.'s No. 2 Sneed, 2,260 ft. S and 990 ft. W of NW cor. J. W. Proctor Sur., located in M. Robinson Sur. ..... Drlg. 2,635 ft.
Skelly Oil Co.'s No. 6 Armstrong & Byrd, 1,600 ft. S and 990 ft. E NW cor. of J. N. Proctor Sur. ..... Drlg. 1,100 ft.
Skelly Oil Co.'s No. 7 Armstrong & Byrd, 2,260 ft. S and 990 ft. E NW cor. J. N. Proctor Sur. ..... Rig.
Phillips Pet. Co.'s No. 1 Burnett, 330 ft. each way from NE cor. NE, Sec. 192, Blk. 3-T, T.&N.O. Sur. Drlg. 2,980 ft.
Phillips Pet. Co.'s No. 3-A Sneed, Jr., 1,600 ft. S and 430 ft. W of NW cor. J. N. Proctor Sur. ..... Drlg. 126 ft.
Phillips Pet. Co.'s No. 4 Sneed, 1,600 ft. S and 990 ft. W of NW cor. J. W. Proctor Sur., and located in M. Robinson Sur. ..... Run. 8-in. csg. 2,346 ft.
Phillips Pet. Co.'s No. 1 Taylor, 330 ft. N and E of SW cor. E½ NW cor. Sec. 244, Blk. 3-T, T.&N. O. Sur. ..... Drlg. 1,410 ft.

MOTLEY COUNTY

Explin. Co.'s No. 1 Tillson ..... Drlg. 3,240 ft.
Explin. Co.'s No. 5 Matador, C. Sec. 45, Blk. J-B, C.B. &C.N.G.R.R. Co. Sur. ..... Rig.
Explin. Co.'s No. 6 Matador, 330 ft. from N line and 330 ft. from E line, Sec. 132, Blk. M ..... Rig on ground.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. 5-A ..... Formerly abd. at 5,240 ft; sm show 36 gravity oil 5,288-91 ft show oil brown sand 5,710-1 ft; 300 ft. wtr; S.D. 5,975 ft.

WHEELER COUNTY

Angus et als' No. 2 Morgan, C E½ NW NE, Sec. 93, Blk. 17, H.&G.N. Sur. ..... Drlg. 1,740 ft.
Arnold Oil Co. et als' No. 1 Ritchey, 420 ft. from E and 460 ft. from S lines of NW cor. Sec. 5, Blk. 24, H.&G.N. Sur. ..... Drlg. 1,800 ft.
Byrens et als' No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H.&G.N. Sur. ..... S.D. 2,920 ft.
Clark et als' No. 4 Purcell, C SW SW, Sec. 51, Blk. 17, H.&G.N.R.R. Sur. ..... Drlg. 1,530 ft.
Edwards et als' No. 2 Trostle, C NW NW, Sec. 130, Blk. 23, H.&G.N. Sur. ..... Drlg. 1,840 ft.
Fain-McGaha and Humble's No. 1 Noel, 330 ft. each way from NE cor. S½ SE, Sec. 54, Blk. 24, H.&G. N. Sur. ..... Drlg. 1,788 ft.
Gibson Oil Co.'s No. 6 Bentley, 330 ft. S and E of NW cor. SE SE, Sec. 42, Blk. 24, H.&G.N.R.R. Sur. ..... Drlg. 2,240 ft.
Hartell et als' No. 1 Burchman, C NW SE, Sec. 91, Blk. 17, H.&G.N. Sur. ..... 35,000,000 ft. gas 1,925-27 ft.
Johnson & Co.'s No. 1 Purcell, 430 ft. from N line and 570 ft. from W line NE, Sec. 50, Blk. 17, H.&G.N. Sur. Drlg. 1,570 ft.
Lone Star Co.'s No. 1 Hicks, C SW NE, Sec. 52, Blk. 17, H.&G.N. Sur. ..... Rig.
Lone Star Gas Co.'s No. 4 Jones, C SE NE, Sec. 1, Blk. 24, H.&G.N. Sur. ..... Drlg. 800 ft.
Lone Star Gas Co.'s No. 1 Turnbow, C NE SW, Sec. 67, Blk. 17, H.&G.N.R.R. Sur. ..... Rig.
Mudge Oil Co.'s No. 1 Hicks, C SW SW, Sec. 52, Blk. 17, H.&G.N.R.R. Sur. ..... Drlg. 1,700 ft.
L. W. Rook's No. 1 M. Nelson, C SW NE, Sec. 5, Blk. 24 H.&G.N. Sur. ..... Drlg. 2,020 ft.
Swain & Miller's No. 1 Woodley, C NW NW, Sec. 21, Blk. 24, H.&G.N.R.R. Sur. ..... Rig.
Swain & Miller's No. 1 Turnbow, C NE SW, Sec. 67, Blk. 17, H.&G.N.R.R. Sur. ..... Location.
The Texas Co.'s No. 1 Gordon, 330 ft. N and 405 ft. W SE cor. NW, Sec. 91, Blk. 17, H.&G.N.R.R. Sur. ..... Drlg. 1,835 ft.
L. W. Rook's No. 2 A. Smock, C SW SE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... Rig.
Vaughn et als' No. 1 Woodley, C NE NE, Sec. 21, Blk. 24, H.&G.N. Sur. ..... S.D. 200 ft.
Wisch Kamper's No. 1 Adamson, C NE SE, Sec. 50, Blk. 17, H.&G.N.R.R. Sur. ..... Drlg. 1,250 ft.
Upham Gas Co.'s No. 1 Raybo, C S½ NW NW, Sec. 105, Blk. 23, H.&G.N. Sur. ..... Drlg. 375 ft.

Thermoid

"OIL DRILLER" BELTING

Specially Constructed for **STRENGTH** **FLEXIBILITY** *and* **WEAR** *under the hardest oil-field Service*

SOME THERMOID OIL FIELD PRODUCTS

Brake Lining
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Chester Double Lengths Do Not Leak and Will Not Break Under Severest Tests

THESE pieces welded in double lengths were subjected to the following extreme tests:

The pieces were dropped several times from height of railroad car upon a rail. These tests in no way fractured or harmed the weld.

The pieces were anchored near the gas weld and a chain attached to a locomotive was secured near the end of the pipe. The locomotive pulled on the pipe distorting it as shown in the photograph near weld indicated by arrow. The weld remained intact.

No double length pipe can be stronger than Chester Double Length Pipe.

The field test of the long 10″ line from which these pieces were selected at random did not develop a single leak in the weld.

The careful inspection, crushing tests and final hydrostatic test after welding into double lengths insure 100% satisfaction in service.

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CHESTER

STEEL CASING

SPECIALISTS IN CASING FOR DEEP WELL DRILLING

LINE PIPE

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 42)

BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w ..... Spudded and shut down; renewing leases.
W. J. Donnelly, trustee's No. 1 Dickens, NE cor. SE Sec. 26-15-12w ..... Shut down 4,509 ft.
Ragland and others' No. 1 Unknown, C NW SW Sec. 13-19-10w ..... Rig.

LINCOLN COUNTY

Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3 ..... Rig.
Morgan & Flynn's No. 1 Finlay, SW cor. SW Sec. 19-16-6 ..... Rig.
Wheeler & Mote's No. 1 Kemmer, NW cor. NE SW Sec. 2-16-5 ..... Shut down 2,700 ft.

MUSKOGEE COUNTY

Elk Drilling Co.'s No. 1 Jones, SW cor. SW Sec. 34-13-17 ..... Shut down 400 ft.
L. T. Haney's No. 1 Mitchell, SE cor. NW SE Sec. 33-13-18 ..... Shut down 2,340 ft.
J. L. Slusher's No. 1 Nave, NE cor. SW NW Sec. 20-15-20 ..... Shut down 775 ft.
Colton & Lester's No. 1 Ellington, SW cor. NW SW Sec. 25-12-19 ..... Location.
Colton & Lester's No. 1 Parker, C NW SW Sec. 31-12-19.. Drlg. 1,200 ft.

HUGHES COUNTY

E. W. Whitney and others' No. 1 Moore, SE cor. SW Sec. 17-5-9 ..... Shut down 3,345 ft.
Howard Petroleum Co.'s No. 1 Gilbert, NW cor. SE Sec. 25-8-10 ..... Dry and abandoned 4,697 ft.
Gypsy Oil Co.'s No. 1 McGirt, NE cor. NW SW Sec. 21-6-8 ..... Sand 3,310-30 ft.; corrected, hole full water.

OKLAHOMA COUNTY

Slick & Bailey's No. 1 Koester, C SE NE Sec. 18-13-3w... Shut down 5,030 ft.
Cromwell & Franklin's No. 1 Thompson, SW cor. NE NE Sec. 15-12-3w ..... Drlg. 7,182 ft.
Hall & Briscoe's No. 1 Holmes, NE cor. SW SE, Sec. 16-11-3w ..... Drlg. 4,160 ft.

OKFUSKEE COUNTY

Moose & Daniels' No. 1 Stidham, SW cor. NW Sec. 4-11-10 ..... Shut down 622 ft.
T. B. Slick, Inc.'s No. 1 Barry, SE cor. NE SE Sec 21-11-7 ..... Drlg. 4,125 ft.
Erwin and others' No. 1 Patterson, NW cor. SE Sec. 15-13-9 ..... Location.
Erwin et al's No. 1 Patterson, NW cor. SE Sec. 15-13-9.. Location.
Prairie O. & G. Co.'s No. 1 Palmer, NW cor. NW NE Sec. 2-11-9 ..... Rig.

SEQUOYAH COUNTY

Cooper & Badger's No. 1 Young, NW cor. NE NE Sec. 7-12-20 ..... Shut down.
Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 ..... Shut down 1,100 ft.
Buffington et al's No. 1 Melcher, C SW NW Sec. 31-12-24 ..... Shut down 2,320 ft.

PAWNEE COUNTY

Washoma Oil Co. and others' No. 1 Buffalo, SE cor. NE Sec. 33-22-5 ..... Shut down 3,200 ft.

POTTAWATOMIE COUNTY

Superior Oil Co.'s No. 1 Herminghausen, SW cor. NW NE Sec. 24-8-2 ..... Dry and abandoned 5,516 ft.
T. B. Slick's No. 1 Sailor, SE cor. NW NW Sec. 12-8-3... Drlg. 4,625 ft.
Mid-Continent Petroleum Corp.'s No. 1 James, SE cor. SE Sec. 22-5-3 ..... Rig.
Rush & Vaughn's No. 1 Lester, SE cor. NE NE Sec. 19-6-4 ..... Drlg. 2,360 ft.

CADDO COUNTY

J. B. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w... Shut down 150 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w ..... Shut down 3,394 ft.
English Drilling Co.'s No. 2 Pruitt, CNL NW SE Sec. 22-6-10w ..... Rigged up and shut down.

STEPHENS COUNTY

Stahl & Burris' No. 1 Jefferson, SE cor. NE Sec. 29-2-5w ..... Shut down 3,012 ft.
Prince Bros.' No. 1 Hidgecoxie, NW cor. NE Sec. 29-2-5w ..... Drlg. 2,016 ft.

SEMINOLE COUNTY

Phillips Pet. Co.'s No. 1 Miller, NW cor. SW Sec. 34-11-7 ..... Shut down 3,950 ft.
Burke-Greis Oil Co.'s No. 1 Cyrus, SE cor. NE NW Sec. 13-9-7 ..... Cleaning out 3,554 ft.
Gypsy Oil Co.'s No. 1 Andrews, NE SE NW Sec. 27-10-7 ..... Shut down 4,010 ft.
McCulloch Oil Co.'s No. 1 McGilbray, SW cor. SW NE Sec. 4-8-8 ..... Rebuilding rig 3,325 ft.
McCulloch Oil Co.'s No. 1 Powell, NW cor. NW, Sec. 11-6-5 ..... Rig.
Marland Oil Co.'s No. 1 Strothers, NW cor. SE NE Sec. 5-10-7 ..... Drlg. 4,700 ft.
Magnolia Pet. Co.'s No. 1 Carroll, SW cor. NW SE Sec. 1-7-5 ..... Dry and abandoned 4,820 ft.
Magnolia Pet. Co.'s No. 1 Harjo, NE cor. SE Sec. 34-6-7.. Spudded.
T. B. Slick and others' No. 1 Davis, NE cor. NE Sec. 26-6-6 ..... Drlg. 4,050 ft.

OSAGE COUNTY

Superior Oil Corp.'s No. 1, NW cor. NE Sec. 30-29-8..... Drlg. 910 ft.

MAJOR COUNTY

Randau & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w ..... Show oil 1,235 ft.; shut down.
Earl and others' No. 1 Turner, C NE NE Sec. 23-20-14w.. Rig.
Wilson et al's No. 1 Unknown, NE cor. NE Sec. 4-23-16w. Cellar.

WOODS COUNTY

E. K. Miller's No. 1 Copenhavers, NW cor. NW Sec. 18-24-13w ..... Rigged up and shut down.
Gypsy-Prairie and others' No. 1 Thompson, SE cor. SW Sec. 10-25-15w ..... Drlg. 4,265 ft.
Sinclair Oil & Gas Co.'s No. 1 Thompson, C SW SW Sec. 33-27-16w ..... Rig and tools.

MURRAY COUNTY

Bison Oil Co.'s No. 1 Labor, NW cor. NW Sec. 17-1-2.... Shut down for casing 1,900 ft.
Ramsey Brothers' No. 1-A Malock, C SW NE Sec. 32-1-3. Drlg. 1,260 ft.

DEWEY COUNTY

Huckaby & McCoy's No. 1 Perfect, NE cor. NE Sec. 9-18-15w ..... Shut down 4,500 ft.
Don Sifers' No. 1 Jordan, SW cor. NW Sec. 16-16-17w.. Spudded and shut down.

BECKHAM COUNTY

C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w ..... Shut down 3,460 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w..... Shut down 725 ft.
Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w ..... Shut down 2,402 ft.
Carson and others' No. 1 Danby, SW cor. SE NE Sec. 20-8-22w ..... Shut down 954 ft.
Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-22w ..... Shut down 1,500 ft.
Day Oil Co.'s No. 1 Ault, NW cor. NW Sec. 33-8-21w..... Shut down 1,515 ft.; corrected.

GRADY COUNTY

Remington and others' No. 1 Fryrear, SW SW NE Sec. 13-9-5w ..... Shut down 720 ft.

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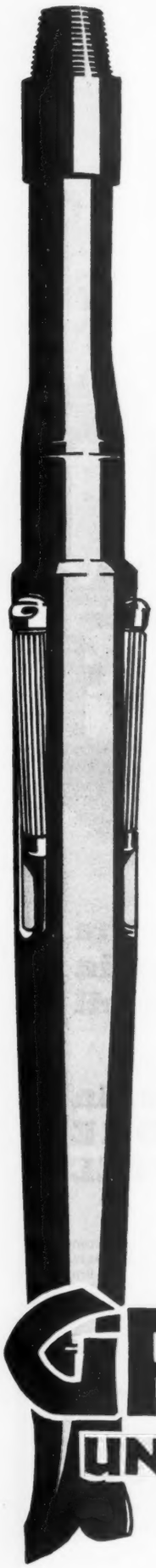

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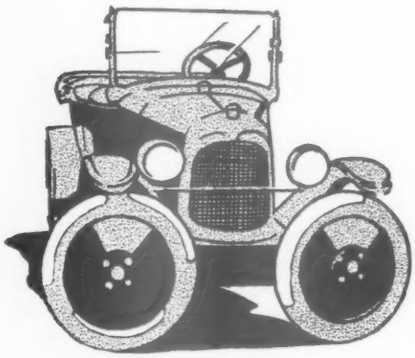

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"Put the Casing on the Bottom"

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w....Spudded and shut down.
J. M. Henry and others' No. 1 Abraham, SE cor. NW Sec. 4-5-8w ....Rig.
J. B. Nichols' No. 1 Brake, SE cor. NE SE Sec. 7-8-7w...Shut down 2,307 ft.

McINTOSH COUNTY

Marione and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ....Shut down 2,387 ft.; corrected.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ....Shut down 5,451 ft.
Wolfe et al's No. 1 Unknown, NW cor. SE Sec. 15-12-18..Rig on ground.

CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w ....Shut down 3,130 ft.
Phillips Pet. and T. B. Slick's No. 1 Hentleman, NE cor. NE Sec. 8-10-2w ....Drlg. 5,370 ft.

KIOWA COUNTY

Blue Mountain Oil Co.'s No. 1 Jones, SE cor. NW NW Sec. 17-5-14w ....Shut down 530 ft.
C. B. Cloyes' No. 1 Brazill, SW cor. NE Sec. 34-7-17w...Shut down 950 ft.
Dave Maiernee's No. 1 Van Kirk, NW cor. NW Sec. 35-7-15w ....Shut down 858 ft. in granite.
A. C. Varner and others' No. 1 Bonham, CSL NW NW Sec. 5-6-18w ....Shut down 1,127 ft.

CUSTER COUNTY

W. E. Witt's No. 1 Wellman, C SE Sec. 1-14-14w.....Rig and tools.

PONTOTOC COUNTY

Moore & Curran's No. 1 Allen, SE cor. SW SW Sec. 23-5-5 ....Shut down 1,460 ft.
Denver P. & R. Co.'s No. 1 Roberts, SE cor. NE NE Sec. 36-5-4 ....Drlg. 1,720 ft.

COMANCHE COUNTY

Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w..Shut down 4,055 ft.
Wright et al's No. 1 Cross, NW cor. SW SW Sec. 4-1-9w..Rig.

COAL COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Cook, SW cor. NW Sec. 10-1-11 ....Drlg. 6,410 ft.
Robert Galbreath and others' No. 1 Jones, SW cor. SE Sec. 24-1-9 ....Shut down 3,350 ft.
J. S. Cosden's No. 1 Richardson, NW cor. NE NE Sec. 6-2-8 ....Rigging up.
McGinley & Sigler's No. 1 Willsey, NW cor. SE SE Sec. 7-2-8 ....Location.

PITTSBURG COUNTY

Kerr & Koy's No. 1 Hall, C NW NW Sec. 32-4-12 .....Drlg. 1,020 ft.

JACKSON COUNTY

Altus Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w ....Shut down 2,020 ft.

SOUTHERN OKLAHOMA
BRYAN COUNTY

Alexander & Oppenheimer's No. 1 Hampton, SE cor. NE Sec. 26-7s-11 ....Shut down 1,425 ft.
McNull & Gross' No. 1 Smith, CEL SE NW NE Sec. 11-6s-9e ....Shut down 375 ft.

MURRAY COUNTY

Alter and others' No. 1 Johnson, SW cor. NW Sec. 14-4-7.Spudded and shut down.

COTTON COUNTY

Cuyler & Pyson's No. 1 Thomas, SE cor. SE SW Sec. 16-4-12w ....Shut down 2,127 ft.
Amerada Pet. Corp.'s No. 1 Dulaney, SE cor. NW NW Sec. 31-4-9w ....Spudded.
Pierce & Brown's No. 1 Hertzler, NW cor. NW Sec. 31-2-12w ....Shut down 2,452 ft.
Shasta Oil Co.'s No. 1 Pah-pe-chi, NE cor. NE Sec. 34-1s-11w ....Drlg. 1,620 ft.

JEFFERSON COUNTY

Amerada Pet. Corp.'s No. 1 Emerson, NW cor. SE SW Sec. 28-5s-8w ....Shut down 4,516 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-19 ....Shut down 1,346 ft.

TILLMAN COUNTY

Bray and others' No. 1 Barker, NE cor. SW NW Sec. 9-1-15w ....Shut down 805 ft.
Dixie Oil Co.'s No. 1 McKinney, NE cor. NE Sec. 29-3s-18w ....Drlg. 3,190 ft.
Stanley & McGregor's No. 1 Mock, NW cor. NW SW Sec. 33-1-20w ....Dry and abandoned 2,445 ft.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-15w ....Shut down 2,535 ft.
Allen & Treadwell's No. 1 Howell, NW cor. SE Sec. 13-1-17w ....Shut down 625 ft.

JOHNSON COUNTY

Wapanucka Oil Co.'s No. 1 Banks, Sec. 28-2s-9 .....Shut down 1,530 ft.
Bush Creek Oil Co.'s No. 1 Kirby, SE cor. NE NW Sec. 9-4-7 ....Shut down for casing 405 ft.
Smith & Kinsley's No. 1 Lane, SE cor. NW Sec. 29-1-7...Drlg. 1,840 ft.
Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e ....Drlg. 1,140 ft.
Sullivan and others' No. 1 Wines, NW NE NW Sec. 11-7s-5e ....Shut down 475 ft.
E. J. Stump and others' No. 1 McGinnis, NW Sec. 26-3s-8w ....Drlg. 1,720 ft.
McCrow and others' No. 1 Trust, SW Sec. 12-1s-8e .....Dry and abandoned 1,923 ft.

CARTER COUNTY

Devonian Oil Co.'s No. 1 Myer, NW cor. SE Sec. 19-5s-3w.Drlg. 2,930 ft.
Avon-Dickey's No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 ....Drlg. 800 ft.
Schermerhorn Oil Co.'s No. 2 Joliff, NE NW Sec. 24-5s-1e ....Drlg. 4,015 ft.
Humble Oil & Ref. Co.'s No. 1 Hitchcock, SE NE Sec. 12-4s-3e ....Drlg. 1,510 ft.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 44)

Phillips Pet. Co.'s No. 1 Brull, C NW Sec. 34-14-17w.....Drlg. 3,710 ft.
Moncrief et al's No. 1 Johnson, SW cor. NE Sec. 9-13-19w ....Rig.
Caracas Group No. 1 Company's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w ....Drlg. 2,042 ft.
Empire Oil & Ref. Co.'s No. 1 Wann, NE cor. NE Sec. 31-12-19w ....Shut down 3,850 ft.

EDWARDS COUNTY

Amerada & Wilcox's No. 1 Teansil, C NW SW Sec. 32-25-19w ....Underreaming 4,462 ft.
British American Oil Co.'s No. 1 McCarty, NE cor. NW Sec. 31-25-17w ....Fishing 2,870 ft.

GEARY COUNTY

Wright et al's No. 1 Younker, NW cor. NE Sec. 17-11-5..Shut down 1,200 ft.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w ....Shut down 2,450 ft.

HARPER COUNTY

Amerada Pet. Corp.'s No. 1 Mendiville, C E SE Sec. 24-34-6w ....Shut down 5,353 ft.

HARVEY COUNTY

R. S. Austin's No. 1 Nieman, SW cor. SW Sec. 21-24-2...Fishing 3,106 ft.
R. F. Garland's No. 1 Cox, NE cor. NE Sec. 27-24-1w....Drlg. 2,840 ft.
Empire G. & F. Co.'s No. 1 Tangeman, SW cor. NE NE Sec. 19-22-1e ....Drlg. 2,110 ft.
Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w ....Shut down 2,100 ft.
Hartman & Skaer's No. 1 Seamen, NW cor. NE SE Sec. 26-24-1e ....Rig.

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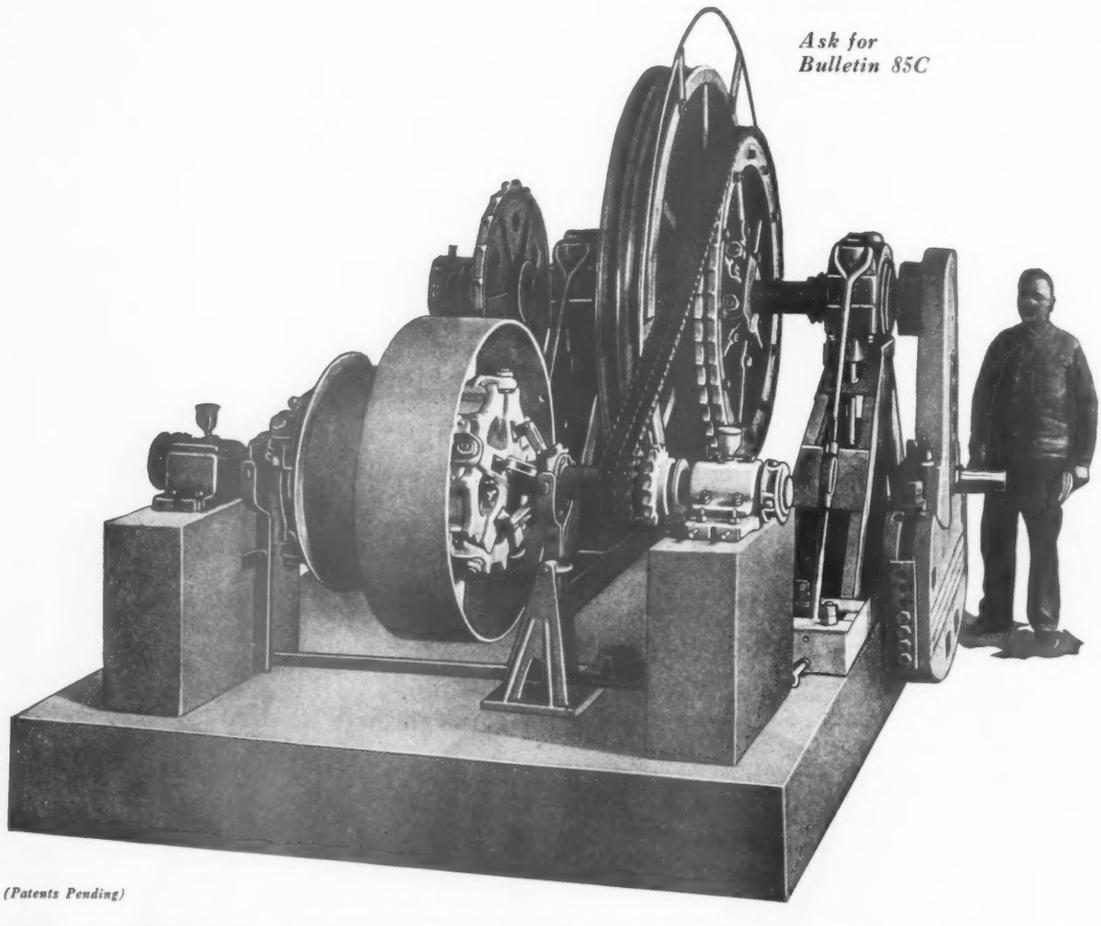

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Hynes, California Tulsa, Oklahoma Sweetwater, Texas

Helmerich & Payne's No. 1 Lindamond, C SW NE SW Sec. 2-22-1e ..... Drlg. 1,820 ft.
Fisher & Louch et al's No. 1 Reiger, NW cor. NE Sec. 17-23-2 ..... Drlg. 2,235 ft.
Jolly & Ogg's No. 1 Randall, NE cor. NE Sec. 11-24-1w.. Drlg. 840 ft.
Patton et al's No. 1 Duning, SE cor. SW NE Sec. 26-24-1.. Rig.
Rosenthal et al's No. 1 Ingalls, NW cor. SW Sec. 24-23-3w ..... Rig.

JEFFERSON COUNTY

Wichlet Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ..... Rigged up and shut down.

JACKSON COUNTY

Garvin & Morton's No. 1 Lutes, SW cor. NW NW Sec. 27-7-15 ..... Shut down 940 ft.

LANE COUNTY

Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-23w ..... Spudded and shut down.

MARSHALL COUNTY

Irwin et al's No. 1 Cooper, NE cor. NW Sec. 10-3-7 ..... Shut down 600 ft.

MARION COUNTY

J. E. Hauna's No. 1 Pankratz, NE cor. NE SW Sec. 13-20-3 ..... Rig.
A. E. Meyers' No. 1 Papp, SW cor. SW NE Sec. 10-18-2.. Shut down 800 ft.
Frank L. Moore's No. 1 Miller, NE cor. NE Sec. 26-19-1.. Rig.

McPHERSON COUNTY

Ted Washabaugh's No. 1 Vosshell, NE cor. NE Sec. 9-21-3w ..... Underreaming 2,610 ft.
Lariaux et al's No. 1 Martinson, NE cor. Sec. 9-19-3w... Rig.
Vickers Pet. Co.'s No. 1 Wedell, C SW Sec. 12-20-2w.... Rig.
Mid-Kansas Oil & Gas Co.'s No. 1 Yoder, C NW SW Sec. 8-20-4w ..... Underreaming 3,050 ft.
Marland Prod. Co.'s No. 1 Wilkering, C SW SW Sec. 9-21-1w ..... Drlg. 2,315 ft.

NESS COUNTY

Barnsdall Oil Co.'s No. 1 Lauk, C SW Sec. 35-18-21w..... Drlg. 2,235 ft.

OSBORNE COUNTY

S. D. Jarvis' No. 1 Jellison, SE cor. SE Sec. 13-10-15w... Drlg. 1,150 ft.

OTTAWA COUNTY

Anderson et al's No. 1 Bank, NE cor. NW Sec. 28-10-2w.. Drlg. 3,215 ft.

PAWNEE COUNTY

F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w. Shut down 1,560 ft.

PHILLIPS COUNTY

Watsonia Oil Co.'s No. 1 Marklein, NE cor. SW Sec. 21-3-19w ..... Underreaming 3,745 ft.
British American Oil Co.'s No. 1 Weinman, C SW SW Sec. 34-2-19w ..... Rig.

PRATT COUNTY

O'Haver & Jones' No. 1 Lunt, C SW NW Sec. 15-28-14w.. Spudded and S. D.

RENO COUNTY

Austin Drilling Co.'s No. 1 Strickley, SW cor. NW Sec. 17-25-5w ..... Rig.

RICE COUNTY

Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w ..... Cellar.
Higgins & Stembubble's No. 1 Shurr, NE cor. SW Sec. 21-20-10w ..... Drlg. 1,810 ft.

ROOKS COUNTY

Prairie Oil & Gas Co.'s No. 1 Sandberg, C SW Sec. 20-9-18w ..... Shut down 1,600 ft.
Burford & Brimm's No. 1 Toxa, NE cor. SW SE Sec. 22-18-17w ..... Spudded and shut down.

RUSH COUNTY

Phillips Pet. Co.'s No. 1 Legleiter, NE cor. NW SE Sec. 10-16-18w ..... Drlg. 1,200 ft.
Sinclair Oil & Gas Co.'s No. 1 Berching, NW cor. NE NW Sec. 9-16-16w ..... Underreaming 3,730 ft.
Danciger Oil Ref. Co.'s No. 1 Poland, NE cor. SW NE Sec. 17-19-17w ..... Shut down 530 ft.
Wilcox Oil & Gas Co.'s No. 1 Schwartzkopf, NE cor. NW SW Sec. 27-27-17w ..... Rig.

SALINE COUNTY

M. Estey et al's No. 1 Peterson, C NE Sec. 6-16-5w..... Spudded and shut down.
Boyle et al's No. 1 Miller, SW cor. SE Sec. 21-16-1w.... Shut down 2,615 ft.
Nathan Jones et al's No. 1 Robertson, NW cor. SW Sec. 27-14-2w ..... Shut down 3,085 ft.

SEDGWICK COUNTY

Bu-Vi-Bar et al's No. 1 Roberts, SE cor. SW Sec. 1-26-2w ..... Rig.
Lewis et al's No. 1 Taylor, NW cor. NE Sec. 23-27-2.... Drlg. 1,840 ft.
J. H. Tatlock et al's No. 1 Goelder, NW cor. NE Sec. 6-29-2e ..... Shut down 3,415 ft.
Kyser et al's No. 1 Stroot, SW cor. NW Sec. 8-26-2w..... Drlg. 3,020 ft.
Lario & Blair's No. 1 Tjaden, C NE SE Sec. 22-29-2w.... Shut down 2,245 ft.
R. Maglason et al's No. 1 Buckles, NW cor. SE Sec. 3-28-1w ..... Shut down 250 ft.
Magnolia Pet. Co.'s No. 1 Wise NW cor. NW Sec. 36-28-2w ..... Drlg. 1,500 ft.
McCulloch Oil Co.'s No. 1 John, C NE SW NE Sec. 24-29-1e ..... Drlg. 3,385 ft.
Morgan & Tilley's No. 1 Fitzgerald, NW cor. NE Sec. 5-26-1w ..... Drlg. 740 ft.
Barnsdall Oil Co.'s No. 1 Faber, SW cor. NW Sec. 6-27-1w ..... Drlg. 3,712 ft.
Connell & Slick's No. 1 Cross, NE cor. NE Sec. 27-25-1w. Drlg. 3,540 ft.
VanZant & Mason's No. 1 Fox, C NW SW Sec. 19-25-1w.. Dry and abandoned 3,504 ft.
Miller Wentz' No. 1 Shaffer, NW cor. NE Sec. 9-27-2w ..... Drlg. 875 ft.
Morgan et al's No. 1 Corn, SW cor. NE, Sec. 28-26-1w.... Drlg. 2,740 ft.
E. B. Shawver et al's No. 1 Reeves, SE cor. SW SE Sec. 19-28-1e ..... Drlg. 2,725 ft.
Shell Pet. Corp.'s No. 1 Lygrisse, SE cor. NE Sec. 15-26-2e ..... Drlg. 1,910 ft.
Washabaugh et al's No. 1 Lowery, NW cor. NE NE Sec. 3-26-2w ..... Rig.
Sullivan et al's No. 1 Shelly, NW cor. NE SE Sec. 32-29-2 ..... Rig.
Hartman & Skaer et al's No. 1 Hutchinson, SE cor. SE SW Sec. 23-28-3w ..... Spudded.
J. H. Tatlock's No. 1 Cook, SW cor. SW Sec. 25-28-2.... Rig.
Producers Oil Co.'s No. 1 Jones, SW cor. NE SE Sec. 31-26-2 ..... Rig.
Connell & Slick's No. 1 Mohammah, NE cor. SE SE Sec. 3-25-1w ..... Rig.
G. L. Ramsey's No. 1 Schluesser, SW cor. SW Sec. 1-25-1 ..... Drlg. 2,214 ft.
Jones & Kirk's No. 1 Sheppard, SE cor. NE Sec. 4-25-1... Rig.
H. H. Patton's No. 1 Ryder, NE cor. NE Sec. 22-25-1.... Drlg. 2,507 ft.

SHERMAN COUNTY

A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 22-7-40w ..... Shut down 3,035 ft.

STEVENS COUNTY

Trees Oil Co.'s No. 1 Thompson, C NE SW Sec. 3-25-38w. Drlg. 570 ft.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w ..... Drlg. 1,620 ft.
McKenna et al's No. 1 Haun, SE cor. NE Sec. 10-33-38w. 2,000,000 ft. gas 2,579 ft.

SMITH COUNTY

Mid-Kansas Oil & Gas Co.'s No. 1 Unknown, NE cor. NE Sec. 4-2-13w ..... Drlg. 2,200 ft.

SUMNER COUNTY

McCullough Oil Co.'s No. 1 Teetle, SW cor. NE Sec. 29-34-1w ..... Shut down 4,632 ft.
Gypsy Oil Co.'s No. 1 Williams, NW SE SW Sec. 16-35-2w ..... Fishing 4,400 ft.
Davidson and others' No. 1 Strickland, SW cor. SE Sec. 12-35-1w ..... Rig.

TREGO COUNTY

Central Commercial Oil Co.'s No. 1 Ellis, NE cor. SW NE Sec. 20-13-21w ..... Shut down 3,300 ft.

WASHINGTON COUNTY

McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3.. Rig.

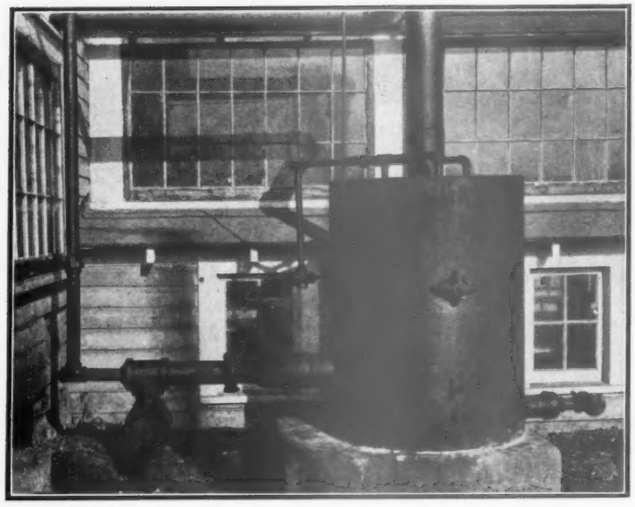
ENDURANCE

A characteristic of the Polar Bear and also of the products manufactured by The Garlock Packing Co., Palmyra, N. Y.

APPROPRIATELY clothed in white, the polar bear lives permanently on the ice packs often hundreds of miles from the nearest land. Having a quantity of protective fur on the soles of its feet as well as on its entire body, the great ice bear of the frozen regions can endure the severest sub-zero temperatures that exist in the land of ice and snow.

Like the polar bear, Garlock Mechanical Packings have great powers of endurance under the most severe and trying conditions. These products have remarkably long life as they are scientifically manufactured from the best of crude materials by master craftsmen.

Standardize on Garlock and be relieved of troublesome packing problems. There is a Garlock Service Man in your vicinity who is ready to call at your plant and make recommendations to meet your individual requirements.



Foreign matter doesn't obstruct BARCO Valves

SCALE does not interfere with the proper working of Barco Lubricated Plug Valves, as demonstrated by this installation on the scale tank used by an oil company to remove scale from gas lines. Barco valves clean themselves each time they are turned.

A quarter turn gives full opening with a Barco valve. They are quick acting and facilitate accurate control. Proper balancing, lubrication, and careful workmanship insure easy turning and long, trouble-free life.

Send for the latest catalog. It is free, but contains much valuable data on valves.

Barco Manufacturing Company
1801 Winnemac Avenue, Chicago, Illinois

Agents:
Vinson-Canter Co., Tulsa, Oklahoma
M. N. Dannenbaum Co., Houston, Texas

BARCO
Valves and Joints

O&GJ 2-14-Gray

BUREAU OF MINES REPORT FOR JANUARY

ANALYSIS OF SUPPLY AND DEMAND OF ALL OILS

	January, 1929	December, 1928	January, 1928
NEW SUPPLY:			
Domestic production:			
Crude petroleum:			
Light	74,812,000	71,231,000	64,653,000
Heavy	7,167,000	8,217,000	8,068,000
Total crude	81,979,000	79,448,000	72,721,000
Natural gasoline	3,983,000	3,929,000	3,466,000
Benzol	250,000	253,000	239,000
Total production	86,212,000	83,630,000	76,344,000
Daily average	2,781,000	2,698,000	2,463,000
Imports:			
Crude	8,075,000	6,807,000	6,145,000
Refined	884,000	1,097,000	1,166,000
Total new supply all oils	95,171,000	91,534,000	83,655,000
Daily average	3,070,000	2,953,000	2,699,000
Change in stocks all oils	11,416,000	4,958,000	10,332,000
DEMAND:			
Total demand	83,755,000	86,576,000	73,315,000
Daily average	2,702,000	2,793,000	2,365,000
Exports:*			
Crude	1,972,000	1,529,000	1,226,000
Refined	11,714,000	9,483,000	11,724,000
Domestic demand	70,069,000	75,564,000	60,365,000
Daily average	2,260,000	2,438,000	1,947,000
Excess of daily average domestic production over domestic demand	521,000	260,000	516,000
STOCKS (end of month):			
Crude petroleum:			
East of California:†			
Light	322,749,000	320,015,000	309,372,000
Heavy	50,164,000	48,416,000	49,882,000
California:			
Light	19,196,000	16,995,000	20,492,000
Heavy‡	99,738,000	99,975,000	94,337,000
Total crude	491,847,000	485,401,000	474,068,000
Natural gasoline at plants	741,000	608,000	748,000
Refined products	133,367,000	128,530,000	125,130,000
GRAND TOTAL STOCKS ALL OILS	625,955,000	614,539,000	599,946,000
Days' supply§	232,000	220,000	254,000
Bunker oil (included above in domestic demand)	3,915,000	4,235,000	3,782,000

*Includes shipments to non-contiguous territories. †Exclusive of producers' stocks. ‡Includes fuel oil. §Grand total stocks divided by daily average total demand.

IMPORTS AND EXPORTS OF CRUDE PETROLEUM (Barrels)

(From Bureau of Foreign and Domestic Commerce)

	January, 1929		December, 1928		January, 1928	
	Total	Dy.av.	Total	Dy.av.	Total	Dy.av.
Imports	8,075,000	260,500	6,807,000	219,600	6,145,000	198,200
From Mexico	784,000	25,300	1,293,000	41,700	1,210,000	39,000
From Venezuela	5,622,000	181,400	4,091,000	132,000	3,283,000	105,900
From Colombia	1,272,000	41,000	1,227,000	39,600	1,141,000	36,800
From other countries	397,000	12,800	196,000	6,300	511,000	16,500
Exports:*	1,972,000	63,600	1,529,000	49,300	1,226,000	39,500
Domestic crude oil:						
To Canada	1,507,000	48,600	1,335,000	43,100	865,000	27,900
To other countries	465,000	15,000	194,000	6,200	361,000	11,600
Foreign crude oil	Not available.					

*No crude shipments to territories.

INDICATED DELIVERIES OF CRUDE PETROLEUM, EXCLUSIVE OF CALIFORNIA GRADES, TO DOMESTIC CONSUMERS (Barrels)

Domestic petroleum by fields of origin:	January, 1929		December, 1928		January, 1928	
	Total	Dy.av.	Total	Dy.av.	Total	Dy.av.
Appalachian	2,606,000	84,100	2,886,000	93,100	2,636,000	85,000
Lima-Indiana	155,000	5,000	175,000	5,600	130,000	4,300
Michigan	159,000	5,100	71,000	2,300	31,000	1,000
Illinois and S.W. Indiana	644,000	20,800	496,000	16,000	628,000	20,300
Mid-Continent	46,230,000	1,491,300	46,612,000	1,503,600	39,654,000	1,279,200
Gulf Coast	3,989,000	128,700	4,089,000	131,900	3,405,000	109,800
Rocky Mountain	2,394,000	77,200	2,511,000	81,000	2,341,000	75,500
Deliveries and exports	56,177,000	1,812,200	56,840,000	1,833,500	48,725,000	1,571,800
Deliveries	54,909,000	1,771,300	55,725,000	1,797,600	47,979,000	1,547,700
Foreign petroleum	7,998,000	258,000	6,790,000	219,000	6,146,000	198,300
Deliveries of domestic and foreign petroleum	62,907,000	2,029,300	62,515,000	2,016,600	54,125,000	1,746,000

NUMBER OF PRODUCING OIL WELLS COMPLETED*

January, 1929	1,205	January, 1928	711
December, 1928	1,059		

*For states east of California, from The Oil and Gas Journal; for California, from the American Petroleum Institute.

SHIPMENTS OF CALIFORNIA OIL THROUGH PANAMA CANAL TO EASTERN PORTS IN UNITED STATES (Barrels)

	January, 1929	December, 1928	January, 1928
Crude oil	.....	.....	334,000
Refined products	2,162,000	2,144,000	1,471,000
Gasoline	1,823,000	1,887,900	1,072,000
Tops	.....	.....	.....
Gas oil	334,000	250,000	311,000
Fuel oil	.....	3,000	2,000
Lubricants	2,000	2,000	85,000
Asphalt	3,000	2,000	1,000

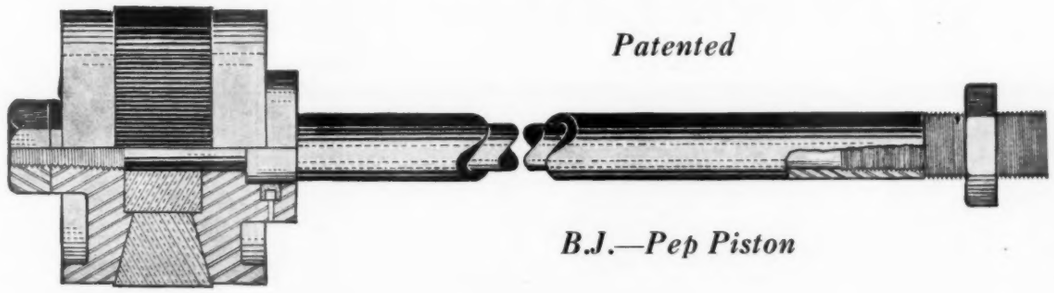
GASOLINE PRODUCTION BY THE VARIOUS METHODS—JANUARY, 1929

(Barrels)

	Straight run	%	Cracked	%	Natural gasoline	%	Total
East Coast	2,590,000	55	1,904,000	40	218,000	5	4,712,000
Appalachian	887,000	64	417,000	30	76,000	6	1,380,000
Ind., Ill., Ky., etc.	2,717,000	54	2,078,000	42	188,000	4	4,983,000
Okla., Kans., etc.	3,003,000	60	1,721,000	34	300,000	6	5,024,000
Texas	3,963,000	54	2,750,000	37	696,000	9	7,409,000
Louisiana and Ark.	1,238,000	51	737,000	30	475,000	19	2,450,000
Rocky Mountain	699,000	51	585,000	42	95,000	7	1,379,000
California	4,961,000	71	855,000	12	1,182,000	17	6,998,000
Total	20,058,000	59	11,047,000	32	3,230,000	9	34,335,000
Ttl. Dec., 1928	19,553,000	58	10,957,000	32	3,397,000	10	33,907,000
Ttl. Jan., 1929	16,148,000	58	8,901,000	32	2,932,000	10	27,981,000
Gulf Coasts	3,654,000	48	2,968,000	39	966,000	13	7,588,000

(Continued on next page)

There are 3 outstanding Pistons . . . . . *all are B. J.'s*

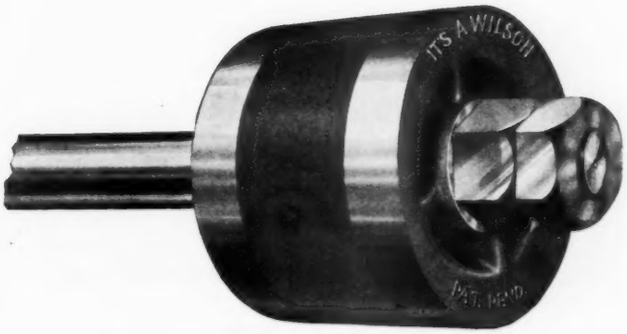


Patented

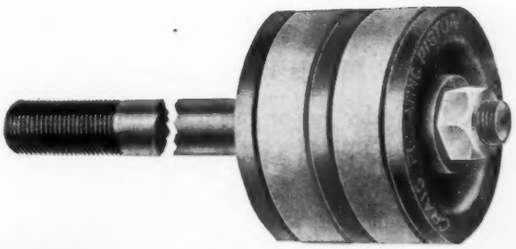
B.J.—Pep Piston

For better slush pump service

To meet every condition of slush pump service, these three Pistons are available. Each has proved its worth for many years. Each embodies scientific principles that reflect their advanced design.



B.J.—Wilson



B.J.—Craig

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of Byron Jackson Pump Co.
2150 E. Slauson Ave., Los Angeles, California

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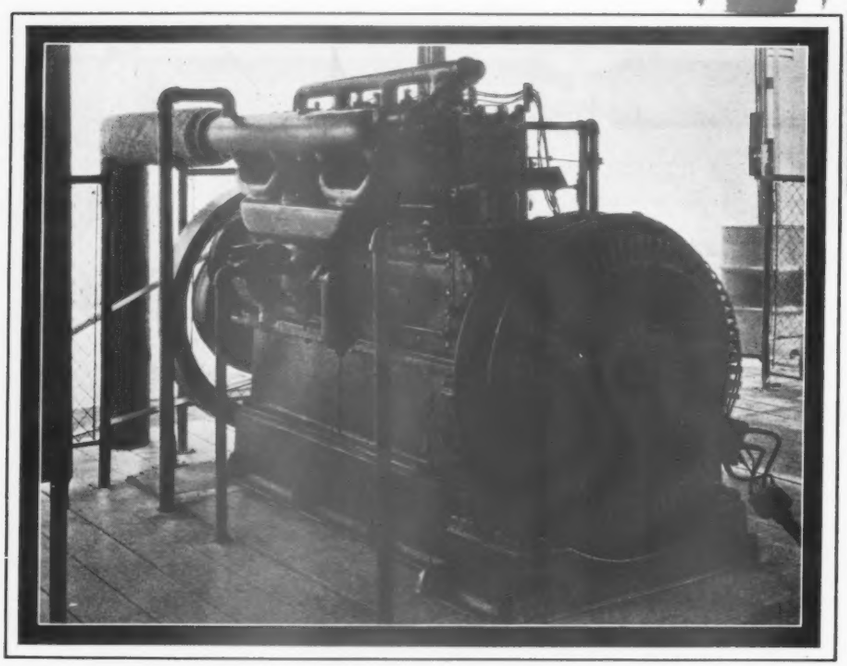
Roll your own

ELECTRIC POWER

Anywhere .... at Low Cost



Clark Gas Engine Generator Unit

If you like electric power and none is available at low cost, MAKE YOUR OWN with the portable CLARK Gas Engine Generator Unit. Generator (75 k.v.a. — 480 v. — 3-phase — 60-cycle, 400 R. P. M.) is direct connected to a CLARK 4-cylinder gas or gasoline engine of 90 brake H. P. at 400 R. P. M. Figure for yourself the convenience and economy of such a unit. Full details on request.

Also investigate the CLARK Portable Direct Motor Driven Vertical Compressor. Clark Bros. Company, Olean, N. Y. Branches and Warehouses: 125 West First St., Tulsa; McCamey and Sweetwater, Texas; and Artesia, N. M. Smith, Booth, Usher Company, 228 S. Central Ave., Los Angeles, and 50 Fremont St., San Francisco.

CLARK

COMPARATIVE ANALYSES

(Thousands of barrels of 42 U. S. gallons.)

	Runs to stills		*Imports		*Exports		Stocks end	Dom. demand	
	Total	Dy.av.	Total	Dy.av	Total	Dy.av.	of period	Total	Dy.av.
Crude petroleum:									
January, 1929	78,825	2,543	8,075	260	2,972	64	†392,259	.....	....
December, 1928	79,520	2,565	6,807	220	1,529	49	†385,426	.....	....
November, 1928	77,149	2,572	6,908	230	1,691	56	†384,143	.....	....
January, 1928	69,067	2,228	6,145	198	1,226	40	†379,753	.....	....
Gasoline:									
January, 1929	34,335	1,108	499	16	4,650	150	40,648	22,602	729
December, 1928	33,907	1,094	420	14	3,802	123	33,066	26,644	859
November, 1928	33,171	1,106	304	10	4,678	156	29,185	26,052	868
January, 1928	27,981	903	562	18	3,713	120	37,368	20,778	670
Kerosene:									
January, 1929	4,700	152	38	1	1,918	62	8,865	2,956	95
December, 1928	4,968	160	20	1	1,241	40	9,001	3,632	117
November, 1928	4,908	164	.....	....	2,091	70	8,886	2,545	85
January, 1928	5,058	163	46	1	2,350	76	7,670	2,799	90
Gas oil and fuel oil:									
January, 1929	36,838	1,188	335	11	3,699	119	‡132,260	.....	....
December, 1928	37,293	1,203	646	21	3,254	105	‡134,901	.....	....
November, 1928	35,771	1,192	411	14	3,320	111	‡136,407	.....	....
January, 1928	33,013	1,065	553	18	4,175	135	‡124,992	.....	....
Lubricants:									
January, 1929	2,945	95	1	....	1,116	36	8,649	1,521	49
December, 1928	2,993	97	3	....	878	28	8,340	1,699	55
November, 1928	2,748	92	1	....	895	30	7,921	1,763	59
January, 1928	2,654	86	.....	....	934	30	7,988	1,592	51
Wax (thous. of pounds):									
January, 1929	58,885	1,900	2,982	96	28,065	905	123,521	20,625	665
Decemebr, 1928	54,685	1,764	2,138	69	26,603	858	110,344	23,825	769
November, 1928	56,665	1,889	2,994	100	25,170	839	103,949	23,354	778
January, 1928	55,378	1,786	1,117	36	39,712	1,281	149,725	17,696	571

*From Bureau of Foreign & Domestic Commerce, subject to revision. Exports include shipments to Alaska, Hawaii, and Porto Rico. †Includes California light crude. ‡Includes California heavy crude and fuel oil.

RUNS TO STILLS AND OUTPUT OF REFINERIES IN THE UNITED STATES, JANUARY, 1929

Input—	Crude oil—domestic	Crude oil—foreign	Unfinished oil runs	Natural gasoline	Total input (bbls.)
East Coast	8,358,000	5,687,000	1,137,000	218,000	15,400,000
Appalachian	2,878,000	.....	98,000	76,000	3,052,000
Ind., Ill., Ky., etc.	8,611,000	.....	634,000	188,000	9,433,000
Oklahoma, Kansas, etc.	9,136,000	.....	427,000	300,000	9,863,000
Texas	16,105,000	100,000	959,000	696,000	17,860,000
Louisiana and Arkansas	5,905,000	639,000	29,000	475,000	7,048,000
Rocky Mountain	2,134,000	.....	642,000	95,000	2,871,000
California	19,272,000	.....	*505,000	†1,182,000	20,959,000
United States total	72,399,000	6,426,000	4,431,000	3,230,000	86,486,000
Daily av., Jan., 1929	2,335,500	207,300	142,900	104,200	2,789,900
Daily av., Dec., 1928	2,351,600	213,600	134,800	109,600	2,809,600
Texas Gulf Coast	11,816,000	100,000	842,000	593,000	13,351,000
Louisiana Gulf Coast	4,008,000	639,000	2,000	373,000	5,022,000

Output—	Gasoline (bbls.)	Kerosene (bbls.)	Gas oil and fuel oil (bbls.)	Lubricants (bbls.)	Wax (lbs.)
East Coast	4,712,000	609,000	7,941,000	947,000	24,982,000
Appalachian	1,380,000	283,000	650,000	430,000	7,663,000
Ind., Ill., Ky., etc.	4,983,000	425,000	2,803,000	310,000	6,060,000
Oklahoma, Kansas, etc.	5,024,000	760,000	2,983,000	210,000	3,982,000
Texas	7,409,000	1,256,000	7,250,000	741,000	6,267,000
Louisiana and Arkansas	2,450,000	403,000	3,141,000	55,000	5,305,000
Rocky Mountain	1,379,000	140,000	507,000	48,000	4,626,000
California	6,998,000	824,000	11,563,000	204,000	.....
United States total	34,335,000	4,700,000	36,838,000	2,945,000	58,885,000
Daily av., Jan., 1929	1,107,600	151,600	1,188,300	95,000	1,899,500
Daily av., Dec., 1928	1,093,800	160,300	1,203,000	96,500	1,764,000
Texas Gulf Coast	5,743,000	1,003,000	5,092,000	716,000	5,920,000
Louisiana Gulf Coast	1,845,000	343,000	1,978,000	50,000	5,305,000

Output—	Coke (tons)	Asphalt (tons)	Other finished products (bbls.)	Unfinished products (bbls.)	Losses (bbls.)
East Coast	14,300	78,400	45,000	86,000	476,000
Appalachian	4,500	.....	29,000	73,000	157,000
Ind., Ill., Ky., etc.	33,800	35,800	194,000	165,000	163,000
Oklahoma, Kansas, etc.	32,800	1,400	51,000	163,000	466,000
Texas	30,100	12,700	5,000	243,000	725,000
Louisiana and Arkansas	11,400	14,800	143,000	572,000	125,000
Rocky Mountain	11,000	900	7,000	654,000	43,000
California	.....	44,400	182,000	*557,000	382,000
United States total	137,900	188,400	661,000	2,513,000	2,542,000
Daily av., Jan., 1929	4,450	6,080	21,300	81,100	82,000
Daily av., Dec., 1928	4,260	5,480	21,800	102,100	73,400
Texas Gulf Coast	24,300	12,700	2,000	40,000	555,000
Louisiana Gulf Coast	11,400	14,800	141,000	453,000	58,000

*Includes 83,000 bbls. net tops rerun. †Includes 115,000 bbls. run through pipe lines.
Note.—Wax, coke, and asphalt equivalent to 279.1 pounds per barrel and 5.11 and 5.50 bbls. per ton, respectively.

STOCKS HELD BY THE REFINING COMPANIES IN THE UNITED STATES, JANUARY 31, 1929

	Gasoline (bbls.)	Kerosene (bbls.)	Gas oil and fuel oil (bbls.)	Lubricants (bbls.)
East Coast	6,364,000	1,226,000	5,101,000	2,910,000
Appalachian	1,605,000	305,000	1,163,000	1,232,000
Indiana, Illinois, Kentucky, etc.	6,793,000	874,000	2,357,000	795,000
Oklahoma, Kansas, etc.	4,830,000	773,000	5,067,000	537,000
Texas	6,094,000	1,578,000	11,908,000	1,945,000
Louisiana and Arkansas	2,772,000	938,000	5,754,000	100,000
Rocky Mountain	2,056,000	424,000	1,172,000	191,000
California	10,134,000	2,747,000	.....	939,000
United States total	40,648,000	8,865,000	*32,522,000	8,649,000
U. S. total, Dec. 31, 1928	33,066,000	9,001,000	*34,926,000	8,340,000
Texas Gulf Coast	5,280,000	1,493,000	9,215,000	1,878,000
Louisiana Gulf Coast	2,524,000	904,000	4,744,000	98,000

	Wax (lbs.)	Coke (tons)	Asphalt (tons)	Other finished products (bbls.)	Unfinished oils (bbls.)
East Coast	49,953,000	27,500	90,800	50,000	7,447,000
Appalachian	14,335,000	2,300	300	66,000	1,436,000
Ind., Ill., Ky., etc.	16,209,000	44,600	46,400	137,000	4,065,000
Oklahoma, Kansas, etc.	5,585,000	66,800	2,400	88,000	2,421,000
Texas	6,716,000	128,700	9,300	15,000	10,867,000
Louisiana and Arkansas	11,821,000	58,500	26,000	88,000	2,207,000
Rocky Mountain	18,902,000	75,400	5,800	42,000	1,355,000
California	.....	.....	48,100	167,000	†8,466,000
United States total	123,521,000	403,800	229,100	653,000	38,264,000
U. S. ttl., Dec. 31, '28	110,344,000	436,900	235,500	635,000	38,601,000
Texas Gulf Coast	6,586,000	120,300	9,200	8,000	9,287,000
Louisiana Gulf Coast	11,821,000	58,500	25,600	84,000	1,955,000

*East of California. †Includes 1,343,000 bbls. tops in storage.

(Continued on next page)

Its individual worm type hoist

Insures absolute SAFETY

LORRAINE
SUCKER ROD RACK

Operators have found the Lorraine Sucker Rod Rack indispensable to maximum safety and efficiency when running-in or pulling-out, as well as an investment that pays for itself in a surprisingly short time. It provides maximum safety to both men and rods. The special worm type hoist is sufficiently strong to hold any stand of rods while the worm gear holds the load steady and positively prevents the handle from flying back, thus eliminating the possibility of injury to derrickmen, or dropping of the rods.

The Lorraine Rod Rack guards the rods against kinking and twisting, as it suspends them vertically from the derrick crown—in a compact, non-protruding group without angle or bend.

Built in two sizes—for 60 and 88 stands of rods. Write for descriptive folder.

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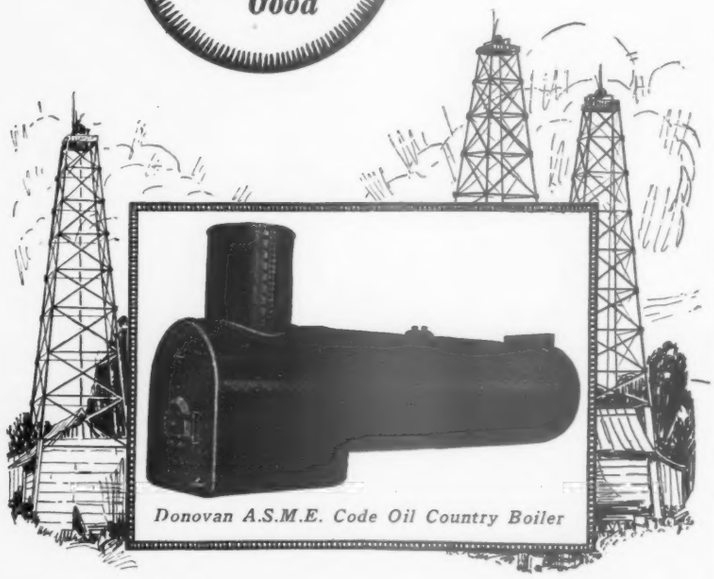
Donovan Boilers are Consistently Good



Donovan A.S.M.E. Code Oil Country Boiler

Chosen to drill

one of the

world's deepest wells

Pittsburgh, Pa.

DONOVAN BOILER WORKS, INC.,
Parkersburg, W. Va.
Attn. Hugh Donovan, Jr.
Gentlemen:

Am pleased to state that we placed your boiler (80 H.P. 150 lbs. W.P. A.S.M.E. Code) on the world's deepest well—7,756 feet.

We found this boiler to be much superior in power to the two 30 H.P. boilers we had been using, and also more economical in gas consumption.

We discontinued drilling at 7,756 feet but I feel satisfied that your 80 H.P. boiler would drill to a depth of much more than this.

We used considerable casing in this well as follows: 14" casing, 67 feet; 10" casing, 1,111 feet; 8" casing, 3,905 feet; 6⅝" extra heavy, 30-lb. screw casing, 6,342 feet, and 6,785 feet of welded 4" I.D. casing.

We found a light pay of gas in the Oriskany sand at 6,827 feet and gas at 7,428 feet and 7,441 feet.

I am enclosing some pictures.

With best wishes, I am

Yours very truly,
(Signed) W. E. SIGGENS,
Supt. Deep Well Drilling,
PEOPLES NATURAL GAS CO.

Manufactured by

DONOVAN BOILER WORKS, INC.
PARKERSBURG, W. VA.

NEW YORK OFFICE—30 Church Street
FRICK-REID SUPPLY CORPORATION
Mid-Continent and Eastern Distributors
GREAT NORTHERN TOOL & SUPPLY CO.
MIDLAND IRON WORKS
Montana Distributors

All Leading Supply Houses Throughout the Eastern Fields Handle

DONOVAN QUALITY PRODUCTS
NONE BETTER

PRODUCTION OF CRUDE PETROLEUM BY FIELDS AND STATES WITH CLASSIFICATION BY GRAVITY

	January, 1929		December, 1928		January, 1928	
FIELD:	Total	Dy.av.	Total	Dy.av.	Total	Dy.av.
Appalachian	2,583,000	83,300	2,551,000	82,300	2,398,000	77,400
Lima-Indiana	108,000	3,500	123,000	4,000	124,000	4,000
Michigan	159,000	5,100	71,000	2,300	31,000	1,000
Illinois-S.W. Indiana	589,000	19,000	603,000	19,500	550,000	18,700
Mid-Continent	48,760,000	1,572,900	48,240,000	1,556,100	44,517,000	1,436,000
Gulf Coast	4,253,000	137,200	3,991,000	128,700	3,644,000	117,500
Rocky Mountain	2,141,000	69,100	2,294,000	74,000	2,391,000	77,100
California	23,386,000	754,400	21,575,000	696,000	19,028,000	613,800
United States total	81,979,000	2,644,500	79,448,000	2,562,900	72,713,000	2,345,600
STATE:						
Arkansas	2,324,000	75,000	2,562,000	82,600	2,732,000	88,100
California	23,336,000	754,400	21,575,000	696,000	19,028,000	613,800
Colorado	214,000	6,900	208,000	6,700	219,000	7,100
Illinois	506,000	16,300	514,000	16,600	510,000	16,500
Indiana	87,000	2,800	95,000	3,100	77,000	2,500
Southwestern	83,000	2,700	89,000	2,900	70,000	2,300
Northeastern	4,000	100	6,000	200	7,000	200
Kansas	2,929,000	94,400	2,979,000	96,100	3,346,000	107,900
Kentucky	586,000	18,900	597,000	19,200	542,000	17,500
Louisiana	1,776,000	57,300	1,697,000	54,700	1,776,000	57,300
Gulf Coast	723,000	23,300	600,000	19,300	415,000	13,400
Rest of State	1,053,000	34,000	1,097,000	35,400	1,361,000	43,900
Michigan	159,000	5,100	71,000	2,300	31,000	1,000
Montana	306,000	9,900	346,000	11,200	370,000	11,900
New Mexico	76,000	2,500	107,000	3,400	79,000	2,500
New York	255,000	8,200	251,000	8,100	187,000	6,000
Ohio	532,000	17,200	535,000	17,300	560,000	18,100
Central and Eastern	428,000	13,800	418,000	13,500	443,000	14,300
Northwestern	104,000	3,400	117,000	3,800	117,000	3,800
Oklahoma	22,884,000	738,200	22,772,000	734,600	20,990,000	677,100
Osage County	.....	.....	1,415,000	45,700	1,815,000	58,500
Rest of State	.....	.....	21,357,000	688,900	19,175,000	618,600
Pennsylvania	850,000	27,400	845,000	27,300	762,000	24,600
Tennessee	2,000	100	1,000	....	2,000	100
Texas	23,100,000	745,200	22,221,000	716,800	19,317,000	623,200
Gulf Coast	3,530,000	113,900	3,391,000	109,400	3,229,000	104,200
Rest of State	19,570,000	631,300	18,830,000	607,400	16,088,000	519,000
West Virginia	462,000	14,900	439,000	14,200	462,000	14,900
Wyoming	1,545,000	49,800	1,633,000	52,700	1,723,000	55,600
Salt Creek	916,000	29,500	1,010,000	32,600	1,298,000	41,900
Rest of State	629,000	20,300	623,000	20,100	425,000	13,700
CLASSIFICATION BY GRAVITY (approx.):						
Light crude	74,812,000	2,413,300	71,231,000	2,297,800	64,658,000	2,085,100
Heavy crude	7,167,000	231,200	8,217,000	265,100	8,055,000	259,800

STOCKS OF CRUDE PETROLEUM HELD IN THE UNITED STATES

AT REFINERIES (and in coastwise transit thereto). Reported by location of storage:		Jan. 31, 1929	Dec. 31, 1928	Jan. 31, 1928
East Coast:				
Domestic		8,340,000	8,496,000	8,469,000
Foreign		5,072,000	4,306,000	4,004,000
Appalachian		2,256,000	2,183,000	1,833,000
Indiana, Illinois, Kentucky, etc.		2,856,000	2,939,000	2,612,000
Oklahoma, Kansas, Missouri, etc.		6,001,000	5,530,000	5,655,000
Texas:				
Inland		2,166,000	2,184,000	1,484,000
Gulf Coast:				
Domestic		8,130,000	7,206,000	8,006,000
Foreign		310,000	207,000	152,000
Arkansas and Inland Louisiana		841,000	758,000	441,000
Louisiana Gulf Coast:				
Domestic		2,731,000	3,315,000	5,386,000
Foreign		1,717,000	1,359,000	1,289,000
Rocky Mountain		2,098,000	2,046,000	1,493,000
Total east of California		42,518,000	40,529,000	41,580,000
ELSEWHERE THAN AT REFINERIES:				
Domestic—Reported by field of origin:				
Appalachian:				
N. Y., Pa., W. Va., Eastern and Central Ohio:	Gross	4,954,000	5,023,000	6,459,000
	Net	4,671,000	4,738,000	6,148,000
Kentucky:	Gross	955,000	813,000	1,176,000
	Net	808,000	764,000	1,048,000
Lima-Indiana:	Gross	1,298,000	1,344,000	1,282,000
	Net	1,115,000	1,162,000	1,126,000
Illinois-S. W. Indiana:	Gross	11,978,000	12,035,000	12,616,000
	Net	11,312,000	11,367,000	12,122,000
Mid-Continent:				
Oklahoma; Kansas; Central, North, and West Texas:	Gross	254,591,000	252,021,000	238,149,000
	Net	241,984,000	239,527,000	225,895,000
Northern Louisiana and Arkansas:	Gross	29,145,000	29,008,000	28,435,000
	Net	26,353,000	26,280,000	25,817,000
Gulf Coast:	Gross	19,042,000	18,858,000	18,558,000
	Net	18,568,000	18,304,000	18,161,000
Rocky Mountain:	Gross	25,276,000	25,522,000	27,321,000
	Net	25,248,000	25,501,000	27,288,000
Total pipe line and tank farm stocks east of California:	Gross	347,239,000	344,724,000	333,998,000
	Net	330,059,000	327,643,000	317,597,000
Foreign crude petroleum on Atlantic Coast		69,000	49,000	48,000
Foreign crude petroleum on Gulf Coast		267,000	210,000	43,000
		336,000	259,000	91,000
TOTAL refinery, pipe line and tank farm stocks of domestic and foreign crude petroleum east of California		372,913,000	368,431,000	359,268,000
CLASSIFICATION BY GRAVITY (approx.):				
East of California:				
Light crude (24 degrees and above)		322,749,000	320,015,000	309,372,000
Heavy crude (below 24 degrees)		50,164,000	48,416,000	49,896,000
CALIFORNIA: Light		19,196,000	16,995,000	20,492,000
Heavy (including fuel)		99,738,000	99,975,000	94,327,000
PRODUCER'S STOCKS (not included above; approx.):				
East of California		7,400,000	7,300,000	.....
California		1,223,000	.....	.....

DOMESTIC EXPORTS OF PETROLEUM AND REFINED PRODUCTS

		Month of January		Six months ended December	
		1928	1929	1927	1928
Petroleum—					
Crude	Bbls.	1,225,530	1,971,644	8,304,680	10,289,015
Crude	$	1,697,870	2,638,540	13,402,714	14,875,325
Total refined petroleum	Bbls.	11,011,649	10,860,022	57,973,793	61,611,726
Total refined petroleum	$	37,035,892	42,216,141	198,880,128	241,097,270
Gasoline, naphtha, and other light products	Bbls.	3,764,988	4,506,349	21,257,021	26,586,979
	$	15,419,444	21,253,664	91,364,783	127,081,352
Oils—					
Illuminating	Bbls.	2,291,680	1,895,795	9,932,478	10,612,350
Illuminating	$	9,560,783	7,655,137	37,733,375	47,009,137
Gas and fuel	Bbls.	4,018,995	3,342,850	21,796,194	19,273,007
Gas and fuel	$	4,270,877	3,687,729	23,785,589	20,939,121
Lubricating	Bbls.	924,175	1,101,469	4,931,354	5,126,599
Lubricating	$	7,643,723	9,430,173	45,147,466	44,919,840
Other refined petroleum	Bbls.	11,811	13,559	56,746	92,715
	$	141,065	189,438	848,915	1,067,820
Paraffin wax	Lbs.	39,712,147	28,060,215	184,159,860	171,857,190
Paraffin wax	$	1,558,935	1,477,071	7,375,006	8,261,339

Parkersburg

HAS SERVED THE OIL FIELDS OF THE WORLD FOR THIRTY-ONE YEARS

Eclipse Pitmans

THE Parkersburg Eclipse Pitmans are the only ones on the market with self-aligning bearing boxes, which permit them to align themselves with the weaving motion of the walking beam.

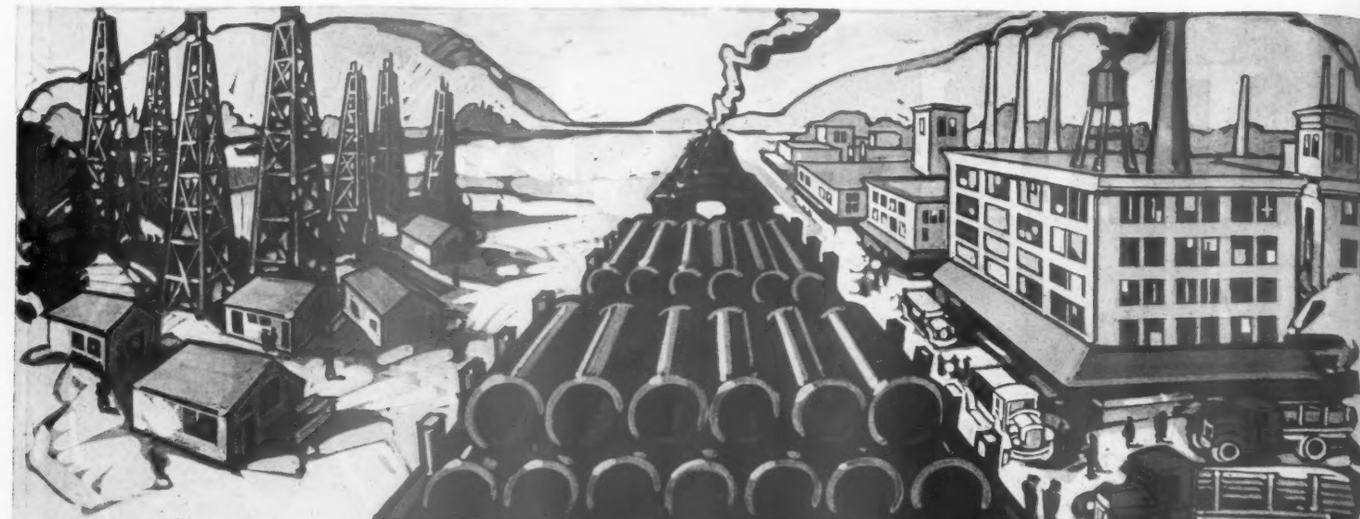
The heavier Parkersburg Drilling Eclipse Pitman, recently designed and now available, is made from the same H-Beam as that of the pumping pitman, but is heavily reenforced at the wrist pin end.

Unlike the pumping pitman, the bearing box in the drilling pitman will not drop out when released from the wrist pin.

For complete information on these pitmans, write for Section "E"—Catalog 26.

Parkersburg Products

The
PARKERSBURG
RIG & REEL COMPANY



Seamless

CASING

TUBING

DRILL PIPE
(Regular and Heat Treated)

LINE PIPE

STILL TUBES

Sizes 2 inch to 13⅜ inch O.D.

From beginning to end, Standard Seamless and Etna Welded Pipe are products of exacting workmanship and materials. The best pipe steel is used, the process of manufacture is regulated to the closest degree with modern and efficient furnaces and machinery and the inspection of the finished production is intelligent, rigid and uncompromising.

Only one grade of pipe is made for customers use and that is the very best. The pipe that does not come up to the rigid standard this company has set for their product, automatically becomes scrap. No "seconds" are manufactured . . . none are sold.

Since 1828

Welded

STANDARD PIPE

CASING

TUBING

LARGE O. D. PIPE

LINE PIPE

DRIVE PIPE

DRILL PIPE

Sizes ⅛ inch to 24 inch O. D.

STANDARD

ETNA

SPANG, CHALFANT & Co., INC.

General Offices: **CLARK BUILDING, PITTSBURGH, PA.**

Sales Offices: CHICAGO, ILL. NEW YORK, N.Y. ST. LOUIS, MO. PITTSBURGH, PA. TULSA, OKLA. LOS ANGELES, CAL.

Mills: ETNA, PENNA. SHARPSBURG, PENNA. AMBRIDGE, PENNA.

CENTRAL WEST FIELDS

(Continued from Page 60)

from the north line and 500 from the east line of the Thomas Bailey farm, in the NE of Section 34, Columbia Township, Gibson County. Total depth drilled in this hole was 1,476 feet.

ILLINOIS FELDS

The Allendale Field in Wabash Township, Wabash County, shows a slight revival in development work, and is the only Illinois area to show any activity at this time. In this field the Wabash Oil Co. has drilled in a 10-bbl. pumper in No. 8 well, 1,000 feet from the north and east lines of the S. J. Stillwell farm, in the SW Section 1. In this well the sand was topped at 1,375 feet and drilled 12½ feet into the sand. McColpin Brothers and others did not find a commercial producer in a second test 1,100 feet from the south line and 400 feet from the east line of the Cora B. Kogan farm, in the NW of Section 2, as it was dry at a depth of 1,442 feet. J. S. Young, Jr., and others are starting No. 3 on the L. G. Stillwell, Section 12. The Mahutska Oil Co. is drilling No. 8 J. H. Stillwell, same section. Ridge Farm Oil Co. is drilling No. 5 W. M. Price, Section 14. Mount Carmel Oil Co is drilling No. 8 F. M. Leek, Section 1, and the Highland Oil Co. is starting No. 1 on the Sam Bailey farm, Section 4, same township.

The Ohio Oil Co. drilled a dry hole in No. 3 on the Dora A. Hipshire No. 3 farm, in the NW of Section 25, Petty Township, Lawrence County, the location being 660 feet from the south line and 620 feet from the east line of the lease. This well was drilled through the Tracy sand at 1,675 feet. Same company is drilling No. 10 on the Cassie Walter farm, Section 36, same township.

Southeast of Casey, in Johnson Township, Clark County, W. C. McBride, Inc., drilled in No. 3 in the SE cor. of the J. Connelly farm, in the NW of Section 1, getting a 2-bbl. pumper at 540 feet.

Miller, Mackey & Talbot abandoned their No. 1 on the Vach Ramp and others' property, comprising Lots 13, 14 and 15, Block 1, Section 19, Centralia Township, Marion County.

KENTUCKY-TENNESSEE

(Continued from Page 64)

view and all completions announced were confined to two counties in the western portion, Daviess and Ohio Counties. It is only a question of good weather until a very active drilling campaign will be made all over almost the entire western half of the State, as a large amount of leasing has been done during the winter months so far and leasers are still active securing large blocks in the various counties.

State Geologist W. R. Jillson of Frankfort has just released figures on production for the past seven years, 1922 to 1928, inclusive, of Ohio County, the most active oil-producing region of the State.

Year—	Volume (bbls.)	Value
1922	1,265.61	$ 2,169.95
1923	9,789.21	14,177.04
1924	78,631.32	122,175.06
1925	165,039.38	294,871.85
1926	362,908.72	740,538.84
1927	1,325,731.06	1,808,322.42
1928	2,020,145.83	2,915,227.27

Ohio County Wells

The outstanding lease in Ohio County at this time is the Ellis Bartlett 54 acres, southwest of Taffy and north of Clear Run and to the southwest of the Ambrose-Weller Pool. Three wells have been completed on this farm recently, the first being drilled during February, with an initial production of 200 bbls. but after given a shot was put on the pump and reported making close to 240 bbls. This lease is owned by Berg, Hupp and others and appears to be one of the rich spots of the county. No. 2 came in at 200 bbls. natural as did No. 3, but may show large production as did No. 1 after given a shot. The owners are going to produce the last two wells without a shot for the present. The remarkable thing is that dry holes have been found on adjoining leases as offsets which makes the owners believe the pool is on the 54-acre tract, although an extension may yet be found around the small tract.

Snowden-McSweeney Co.'s No. 12 on the Howard heirs, in the Midkiff Pool, northeast of the Ambrose Pool, and on a 246-acre tract, produced 60 bbls. at a total depth of 455 feet. In this well a string of 425 feet of casing was set, and sand from 431 to 451 feet.

The Ohio Oil Co.'s No. 8 on the Charles Roach 130 acres in the Whittaker Pool developed a duster at 675 feet.

Ray Bigler and others drilled a dry hole in No. 7 on the J. E. Hendrix, in the Whittaker Pool, at a total depth of 874 feet.

New Domain Oil & Gas Co.'s No. 4 on the Royal lease, in the Kelley Pool, is reported at 30 bbls. initial.

Leeper Oil Co.'s No. 3 Ollie Evans farm was reported at 30 bbls. initial.

Daviess County Wells

The Kemrow-Cumberland Petroleum Co.'s second well on the S. H. Easton 75 acres in the Burton area of Daviess County produced 25 bbls. initial.

Smith, Randolph and others' No. 9 Oscar Wells 80 acres in the Browns Pool produced an initial of 30 bbls., not quite as prolific as some of the former wells on the lease, which has been a profitable one.

Penn-Indiana Oil Co.'s No. 3 on the Southwest Title and Trust Co. property in the Burton Pool, which contains 163 acres, is an initial producer for 20 bbls.

Eastern Gulf Oil Co.'s No. 7 W. A. Murray in the Red Hill section is a 20-bbl. initial producer.

Pops Development Co. registered the best completion in the county recently in No. 5 on the Marion Taylor farm, better known as the "Bunk" Taylor property, in the Burton Pool. The well produced an initial of 80 bbls.

In the Hayden Pool, L. C. Young's No. 8 on the W. G. Hayden 133 acres produced 30 bbls. the first 24 hours.

Leeper Oil Co. got a dry hole on the Ben Schneider farm, a half mile west of the hamlet of Knuckles.

Creek Drilling Co., or Miller & Damron, got a hot shot when they landed a real duster on the Tom O'Flinn farm in the Brown Pool. This well got salt water in the Barlow sand at 1,330 feet.

L. C. Young struck a duster on the Joe Ridgeway in the Red Hill Field near Andersonville, and a 20-bbl. initial producer in No. 9 on the K. N. Yeiser 65 acres in the Red Hill Field.

Daley & Lowman's No. 4 on the Emmett Burton 200 acres in the Burton Pool is reported good for but 5 bbls.

Wood Oil Co., Inc., drilled a dry hole on the L. C. Lashbrook farm. French and others got a dry hole in No. 1 on the J. W. Richardson farm, while Goldburg, Young and others found a dry one in No. 2 on the Riddle farm.

D. J. White and others' test on the W. L. Howard farm, 2 miles southeast of "Oklahoma" and near Whitesville, came in for an initial of 25 bbls. in 14 feet of pay sand.

Henderson County

The arrival of F. Julius Fohs and other officials of the Olean Petroleum Co. of New York in Henderson County, Kentucky, indicates new capital is to be entered in the development of that promising oil field. Immediately after their arrival a statement was issued that their company would start work at once drilling a test 1 mile north of Beech Grove, in which area the Olean Petroleum Co. holds extensive acreage. This is the first appearance of this company in Kentucky.

Mr. Fohs was accompanied to Henderson by W. K. Page, an associate in the Olean Petroleum Co., and L. L. Kemp, who will be in charge of operations in Henderson and other Kentucky counties. S. M. Walker, a geologist for the company, has been doing research work. Mr. Kemp, who is to take charge of the company's interests, said he hoped to be able to start drilling in the Beech Grove section within a very short time. The test hole will be drilled to a depth of 1,600 feet and should satisfactory indications of oil be found the company will begin an extensive drilling campaign.

In their efforts in Henderson County the Olean Petroleum Co. will endeavor

100 Hours in 16% Sulphuric Acid at 96°

—and Barberite showed no loss whatever!

Out of two hundred alloys developed and tested to meet the sulphuric acid problems of oil refineries, Barberite was the final selection!

Barberite, a high copper bronze alloy containing nickel, has remarkable corrosion-resisting properties, in many specific instances superior to white nickel alloys and other high copper bronzes. The high tensile strength of Barberite is comparable to mild and medium carbon steel. Barberite is tough, elastic, dense and shows no tendency to segregate, separate into pockets or crystallize.

Here are the tests we gave Barberite:

We immersed it in 16% and 60% sulphuric acid at room temperature for one year—it showed no corrosion loss! Barberite showed no loss in 16% sulphuric acid at 96° C (205° F) when immersed for one hundred hours. In 60% sulphuric acid at the same temperature for the same period, the corrosion loss was negligible.

Besides successfully resisting sulphuric acid, Barberite resists many other acids, bases, salts and organic compounds—a list is given in our folder which we will gladly send upon request.

Barberite Standard Gate Valves are furnished in these sizes: Screwed bonnet, screwed ends ¾", 1", 1½". Bolted bonnet, screwed or flanged ends, 2", 3", 4", 6", 8".

We are prepared to make special Barberite castings from patterns furnished, or we will make patterns to order.

THE BARBER ASPHALT COMPANY

Iroquois Department

New York PHILADELPHIA Chicago
Pittsburgh St. Louis Kansas City San Francisco

BARBERITE

PATENTS PENDING

Non-Corrosive Acid-Resisting

VALVES and SPECIAL CASTINGS

for Oil Refineries and General Chemical Purposes

These Drillers Know

The following actual reports were received direct from drillers of various fields indicating the trend of opinion regarding Bettis Protectors:

Jim Pollard, the Drilling Contractor, says:

"On January 19, 1928, we installed 76 BETTIS PROTECTORS, 4" size. They are still running and in pretty good shape. Now on their sixth hole. They have now

Crew of Mills No. 1, reading from left to right—L. V. Arnold, Driller; T. F. Cuff; P. Foust; N. M. Neil.

They drilled with Bettis Protectors using hot oil for circulation for many hours and the rubbers were not harmed in the least, revealing the resistance of any destructive effect of oil.

been in use more than a year and are the best protectors I have ever seen."

On Maire No. 2

Bettis Protectors have been on this pipe close to one entire year and the driller says they have never had a change of a collar, and this particular string has been in three different wells and 90 per cent of the protectors still look good.

The same string for six wells

Wells Nos. 12, 13, 18, 19, 20 and 16 being drilled by the D— J— Company are all equipped with Bettis rubbers which have been in service for six continuous months. One of the drillers says he wouldn't know how to drill any more without Bettis rubbers.

Using them at Lawndale

Practically all the wells in the Lawndale (Calif.) field are Bettis-equipped, and most of the drillers in the territory are highly enthusiastic about the performance of these anti-friction devices.

Travis No. 1

Replacing roller bearings on the drill pipe, 4" Bettis protectors were installed down to 6,000 feet on this well, and are giving superior satisfaction.

Clark No. 2

Drilling down to about 7,200 feet the string was drilling in gray sand saturated with oil, and the Bettis protectors on the pipe have given perfect satisfaction.

Fulton No. 3

On this well in Ventura, equipped with Bettis Protectors, they wore drilling pipe out before the protectors showed any wear. It is reported that the protectors were taken off the drill pipe and the pipe salvaged. The couplings were not worn a bit, but the pipe had given such long service that it was felt unsafe to continue to use it.

Deepest Signal Hill well

The driller who was in charge of the deepest producing well drilled to 8,100 feet at Signal Hill reports that it is his opinion this well would never have been finished were

The crew of Travis No. 1 at Long Beach showing Bettis Protected pipe at collar.

it not for Bettis Protectors; says the drill pipe would never have held together had it not been for the protectors.

W. C. Baker, driller, votes for Bettis Protectors.

Mr. Baker has been running pipe with Bettis rubber at Lawndale for quite some time. He was introduced to the service of Bettis rubbers on a wildcat. Says that they drilled that well from top to bottom with Bettis protectors and that not a single one slipped or showed the least bit of wear, although the well was drilled to almost 6,000 feet.

Another driller in that locality makes the

Travis No. 1 at Long Beach was drilled to approximately 7,100 feet with a string of Bettis protected pipe that had previously seen more than 6,000 hours of service. Crew, reading from left to right, J. E. White, driller; J. G. Breton, John Murphy and L. L. Whitaker.

statement that Bettis Protectors will pay for themselves in sixty days on the savings in couplings alone, to say nothing about the saving on other equipment, and fuel.

Could not drill without them

Bill Fraser was setting pipe at 3,750 feet when our field man asked him his opinion about Bettis protectors. He said:

"Boy, I don't think I could make a foot of hole if I had to drill now without the protectors since I have become so accustomed to the pipe rotating so easily. I hope I never have to drill a well that is not Bettis-equipped."

Saving many days per well

A well-known driller for one of the largest California Companies, says that he thinks Bettis protectors have reduced their drilling time about 10 to 15 days on each well, because the pipe rotates much easier and can be pulled easier and floats when running into a hole, therefore saving the brake-bands and drilling equipment.

In open hole

They are running some strings of pipe with Bettis Protectors in open hole at Lawndale, and the drillers report this is the only safe method when open hole is contended with.

One driller says that when it comes to the drilling of deep wells he thinks they should use them all the way down in open hole as

Bettis Protectors - The

their stuff! Ask 'em!

they help to keep the hole straight and make drilling easier.

Saves wire line

Mr. T. A. Lewis, driller, says that he has used Bettis Protectors for many months and in his opinion they lengthen the life of wire line almost twice, as the drill pipe has a tendency to float more or less in the hole going in. This relieves the wire line of

Elliott No. 2 at Santa Fe Springs is the deepest 10¾" well in the world. It was run to 7,110 feet with 7⅝" casing. The pipe was, of course, Bettis-equipped. Crew, reading from left to right—W. G. Pruitt, driller; G. D. Bennett, F. Bakken, H. E. Moon and Nace Winters.

that load and the rubbers make the pipe work easier when coming out. He states that every run is much easier, so easy in fact that he felt that the pipe had twisted off.

It is surprising the number of drillers who have commented upon the saving in brake bands due to the floating effect given to the pipe.

Repay their cost in 30 days

Bud Traylor, drilling for the ——— Oil Company, is in charge of a 7,000-foot string that has already seen four months of service. Mr. Traylor states that if he was drilling a well of his own he wouldn't be without Bettis protectors at any cost. He declares these rubbers will pay for themselves in the saving of fuel alone within thirty days, and that the saving on the casing and drill pipe and other equipment is "all velvet."

The driller at the well next to the one Mr. Traylor is operating, states that the Company is well pleased with the service they have had out of Bettis Protectors and that they have cut fuel bills in half. He says:

"I know that they pay in the saving on the brake-bands alone as we previously had to change our bands at least once every week, but since running in drill pipe with Bettis Protectors we have not had to change a single band."

Another driller at an adjoining well states:

"I think that Bettis Protectors are the only practical ones on the market. I have tried out some other makes and find there is no equal for Bettis."

Saving in steam

A superintendent in the Long Beach field states that before installing Bettis Protectors it took a full turn of steam, when off bottom, to rotate the pipe. After installing Bettis Protectors, the pipe rotated with just a crack of the throttle. It seems that the pipe turns with minimum effort and seems to be coasting all the time when off bottom because metal-to-metal friction is eliminated.

We have more than 600 actual reports from drillers in the various fields. Ask any driller who has ever used Bettis Protectors his honest opinion. That is our best advertisement.

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Now available—Hopkins Anti-friction Tool Joints and Collars equipped with genuine Bettis Protectors.

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Be sure threads are perfect and wiped clean. Apply compound to male threads only and make joint up tight. If compound becomes too thick it may be thinned by adding a little shellac. Use compound only for gasoline and oil piping, never on water steam or sanitary piping.
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to drill into the Pennsylvanian formation, which has only been struck in one instance in this area, that being on the M. A. Ridout farm, according to Mr. Walker.

The Pennsylvanian sand is generally discovered at a depth ranging from 1,600 to 1,800 feet, and there are two drilling outfits nearing the depth in Henderson County. One is on the John Barret farm by the Imperial Oil & Gas Products Co., and the other on the Lee Busby farm by L. C. Young and James C. Ellis.

Among the Wells

The report that Ellis & Thomas had a dry hole in the Jett sand on the Armstrong farm, near Sugar Grove Church on the Hartford Road, in Daviess County, and a mile northwest of the Burton Pool, is without foundation, as it was a fishing job in the Brown lime just above the Jett sand.

George Randolph, Owensboro operator, has returned to his Kentucky headquarters after making a trip over the Oklahoma and Texas Fields.

Elmer Little of Owensboro and Ray Henley of Vincennes, Ind., have taken up a block of leases in Passois Parish, south of Monroe, La., in the gas belt, and contracted for a 3,300-foot hole to be put down within 30 days.

The Petroleum Co. will put down a test in McLean County in the vicinity of the well drilled by Dimmick Brothers, on the Ratliff farm, and the well will be drilled on the east of the Ratliff, as dry holes have been drilled on all sides of the Ratliff producer but the east side.

The Lang Oil & Gas Co. of Owensboro has been incorporated by S. C. Lang and W. H. Park of Evansville, Ind., and E. M. Hinshaw of Glendean, Ky.

The Petroleum Exploration is drilling No. 3 on the Barrett farm in the Jones Pool of Daviess County.

The Ohio Oil Co. is drilling a second test on the G. A. Weller farm in Daviess County. The Creek Drilling Co. is also starting No. 5 on the J .F. Leet farm in the Brown Pool, same county. Charles Toppino is drilling No. 2 on the C. D. Ralph farm.

The Friendship Oil Co., composed of Walter Chenault, Sidney Jenkins and Atwood R. Martin have re-leased a block of 400 acres in the Friendship Chapel section of Ohio County to the Armistead Oil Co. of Wisconsin. Barney Calvert of Superior, Wis., is in the field looking after the interests of the Armistead company, and is moving a rig on the P. R. Kelly farm for the company's first venture.

Mississippi Activity

F. N. Henderson writes from Vicksburg, Miss., as follows: "In this section, the Vicksburg-Jackson area, five derricks are being built and two projects rigging up. The Williams well in Section 29-17-4, 5 miles north of Vicksburg, is rigging up to spud in. The Vicksburg Oil Syndicate's test in Section 23-15-5 is drilling at 125 feet. Derricks are under way for a well behind the Edwards Hotel in Jackson, the Lewis No. 4 in Section 36-15-4; M. Zink and others in SW NW Section 25-16-5, and the Southern Institute No. 1 in Section 30-16-4.

"In Rankin County, NW NE Section 2-5-1e, the Lion Oil & Refining Co. is unloading a rig from El Dorado, Ark. The Atlantic test in Sharkey County, in Section 30-11-6, shut down at 3,042 feet on account of boiler explosion, is awaiting new boiler. In Humphrey County, E. C. Steel and others have derrick erected on the Love farm in NW Section 30-14-3. In Clairborn County, White and others on the Shannon farm, Section 36-10-4, passed through 400 feet gumbo into a shale at 1,708 feet. In Lincoln County, Wynters and others spudded in their Pat Case test in Section 21-8-6, this week.

"At Meridian magnetometer operators are at work and Escue and others have contracted for a well to start July 1, near Meehan Junction. The Gulf company is reported to have taken some protection from Baker & Atkins on their Toptin test. Prospects are that other wells will be started here.

"In the Amory sector, five wells are going down with a reorganization of the Amory Petroleum Co."

EARLIER PERIODS OF OVERPRODUCTIO

(Continued from Page 78)

After much discussion it requested th State Corporation Commission of Okla homa to take charge of the situation an prevent the drilling of unnecessary wel and curtail production so as to bring i within the limits of transportation an marketing facilities.

Proration Plan

The Commission appointed Ray M Collins as its agent and ordered drilling of outside locations and shooting of well to be stopped until a permanent plan could be agreed upon. A series of meetings were held by the operators and the commission. On August 9 a plan calling for proration of the four major pools with a maximum production of 450,000 bbls. a day was approved by the operators and placed in effect by the commission. The agreement made following the discovery of Little River was approved. The umpire and a committee of five were given authority to establish similar zones around important discoveries. The shooting of wells was limited. Just before the plan went into effect production rose to 527,400 bbls. The restriction to less than 450,000 bbls. was put into effect almost immediately. The success of the proration agreement was acclaimed everywhere. It is difficult to say whether the decrease was due to natural causes or to the agreement. On September 1 the wells were opened wide in the four older pools and failed to reach 450,000 bbls.

The critical stage for the shut-down agreement at Little River was at hand. In accordance with that agreement the discovery well was shut down to 100 bbls. a day. It went dead and efforts to revive it brought only a yield of between 200 and 300 bbls. a day. Royalty owners appealed to the Corporation Commission and even instituted legal proceedings against a company living up to the shut-down agreement. The Commission raised the limit to 1,000 bbls. a well. Water was beginning to appear in some sections of Little River and the regulations of the commission concerning the number of wells permitted to drill had given way to competitive operations. The Blackwell Oil & Gas Co., the purchaser of an 80-acre lease at the prices prevailing after the discovery of the pool, refused to keep its production within the 1,000-bbl. limit. After considerable discussion, the company agreed to abide by the ruling. However, shortly afterward the commission permitted production to equal 75 per cent of the potential, and early in October this was raised to 90 per cent.

Shut-Down Agreement

If the shut-down proration agreements made by the producers and the Corporation Commission had ended with the decline of production in the fall of 1927, there would be little reason to feel that they had accomplished anything worth while. However, extensions of the agreements covering the development of new areas had served to prevent the drilling of offset wells adjacent to five discovery locations. At the close of 1927 the number of wells that were considered as capable of producing on a large scale if opened up was increased to seven. No wells were drilling near them and their production was restricted to 100 bbls. per day each. The more important of these wells were those located south and east of Little River. This inactivity was maintained until March 1. On that date, the development of the area under an organized and co-operative plan was begun. Instead of drilling a number of offsetting wells, operators agreed to drill 10 locations so located as to test the area completely. Wells already drilled were allowed to produce at capacity until certain permitted offsets were completed. Then all wells were to be shut down to 50 bbls. daily. In case a test well was dry, the offsetting owners agreed to pay $10,000 each in dry hole money. No other wells were permitted to start until 75 days had elapsed; and no oil, other than the 50 bbls. daily, was

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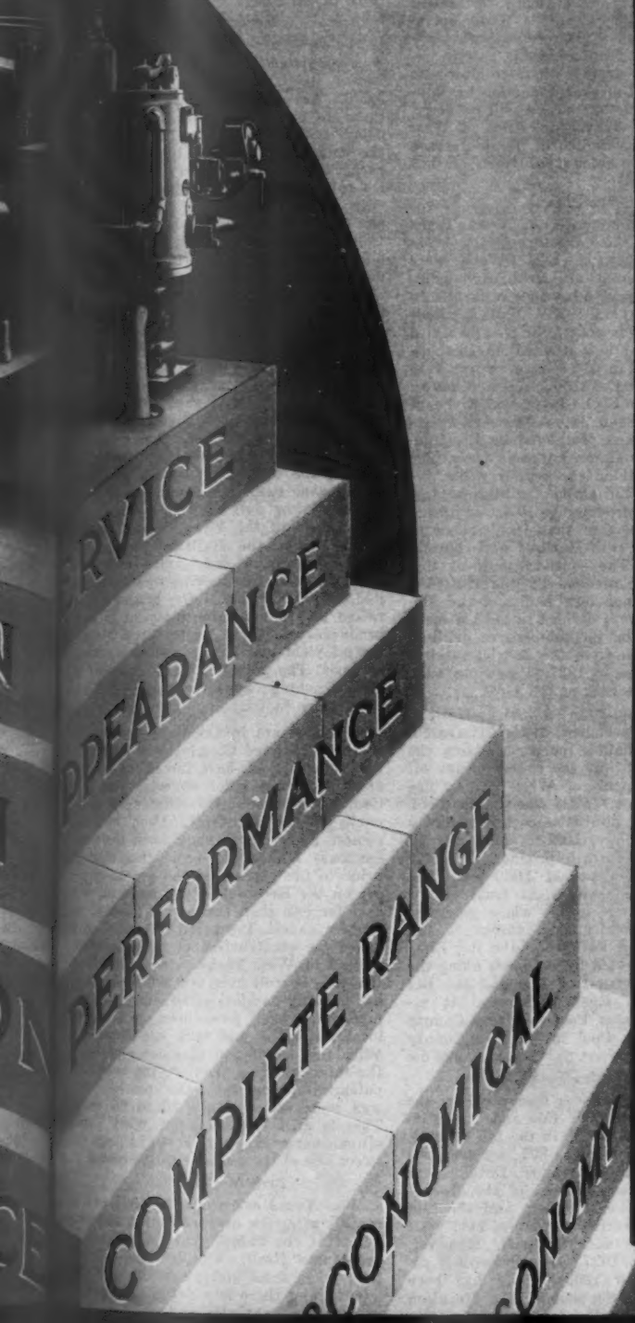

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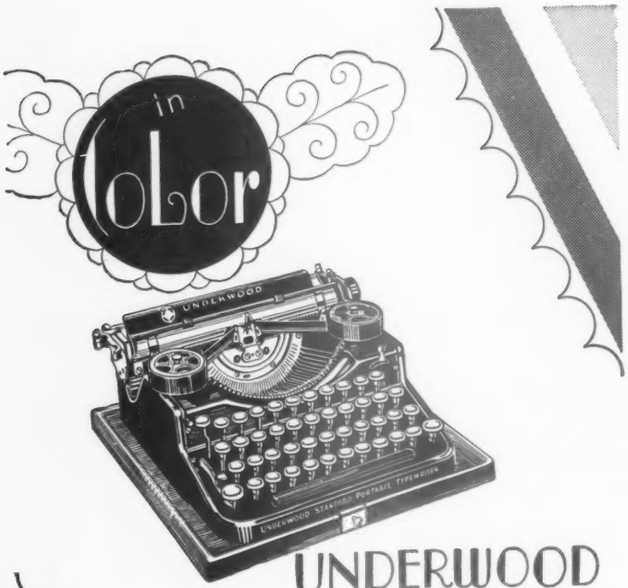

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The Oil and Gas Journal
TULSA, OKLA.

permitted to be taken from any of the test wells until the completion of the wells started after this 75-day period.

The test wells proved the existence of a pool of major size. Before the end of the 75-day period, the operators agreed to drill only two wells to each 40-acre tract and to consider that the date of completion of the wells begun after its termination should be August 15. Production was then to be limited to 1,600 bbls. to each 40-acre tract, the limitation to remain in force until November 1. Production under this agreement began on August 15, approximately six months later than it would have begun had no restrictions been agreed to. In the meantime, the price of oil had been raised somewhat. Whether Little River operators and others whose wells in the outside areas of Seminole will receive returns commensurate with their efforts to end the period of overproduction by shutting down their operations will be determined largely by the activities in West Texas and in pools like St. Louis-Pearson where a large amount of flush oil has been developed.

West Texas

The first production in West Texas came from the Westbrook Pool in Mitchell County in 1921. Wells were small and caused no great excitement. The Big Lake Pool was discovered in Reagan County in 1923. While a major producer, it was controlled by two allied companies and not affected by competitive drilling. In 1925 oil was found in Crockett County. The pool became known as the World Pool. It proved to be of smaller size than later discoveries. Its development was postponed by the finding of larger wells in adjacent areas. The McCamey Pool on the boundary line between Upton and Crane Counties became an important producer in 1926. It proved to be less important than its neighbor to the north, the Gulf-McElroy and Church-Fields area. The southern half of this section was controlled by the Gulf Oil Co., but the northern half and the McCamey area were divided in such a manner as to bring on competitive drilling. The production from the district reached 29,500,000 bbls. in 1927. Pipe lines were rushed to take care of the yield.

Oil was found in southern Howard County in November, 1925. The yield came from shallow horizons above the Big Lime that was the source of the oil in the other pools of West Texas. The productive area, called the Chalk Pool, was extended into Glasscock County in 1927. In October, 1927, a deep test in the area found flush production in the Big Lime at a depth of 2,950 feet. The section changed over night from one of minor importance to one whose potential production constituted a threat to the market. The importance of the Big Lime had been suggested by the pools along the Upton-Crane boundary line and the Big Lake Pool in Reagan County. It remained for Yates Pool in Pecos County and Hendricks Pool in Winkler County to demonstrate what this horizon could do.

Yates Pool

The Yates Pool was discovered by the Transcontinental Oil Co. and the Mid-Kansas Oil & Gas Co. in the fall of 1926. The discovery well was 997 feet deep and flowed under high pressure. Development progressed slowly because of the absence of transportation facilities and the fact that the discovering companies held most of the acreage near the well. However, by September, 1927, 13 wells with a potential yield of 126,000 bbls. had been completed. On September 16 a proration agreement was signed by the operators and the Humble Oil Co. which had constructed a pipe line from the pool to Corpus Christi. The operators agreed to prorate their runs on the basis of periodic hour gauges of production. This system of gauging served to increase drilling activity to such an extent that it had to be abandoned on January 1. A new agreement was then made, in which proven acreage was used as the basis of allowed runs. However, this failed to make allowance for several small fully developed leases whose wells had a high potential yield. At first, these were cared for by special arrangement but later an agreement was made in which the permitted production was determined in part by proved acreage and in part by the potential of the wells. On the first of July, 1928, the Yates operators called in the State Railroad Commission of Texas to supervise the proration of runs. By that time the system of hourly gauges indicated that Yates Pool could produce 2,500,000 bbls. of oil in a day. It is not believed that the area could produce anything like this amount even for a period of a week or two, but the existence of an enormous potential yield far greater than the runs of 65,000 bbls. daily is fully indicated.

Hendricks Pool

The first well in the Hendricks Pool was completed in July 1926. It was 2,525 feet in depth but was later deepened to 3,000. The greater depth and the distance to markets should have served to delay drilling activity. In June, 1927, the completion of pipe lines to loading racks on the Texas & Pacific Railroad led to further drilling, which reached its culmination in December when water began to encroach upon some of the largest wells. Production which had averaged only 1,000 bbls. a day in June rose to 45,000 bbls. in December. The presence of several small leases in the center of the productive area and the wide distribution of the lease ownership prevented the reaching of any agreement to halt the drilling orgy. While the invasion of water did damage some wells, the drilling campaign proved that the pool was far larger than had been anticipated. Production rose steadily, despite the absence of pipe lines and the necessity of placing the oil in storage or sending it out by tank cars. The average daily yield for April was well over 200,000 bbls. At the request of the West Texas Chamber of Commerce the Railroad Commission put a proration order into effect on April 24. The production was first limited to 150,000 bbls. daily, but was later raised to 175,000. The allotment to each producer was based partly upon his potential yield and partly upon his proved acreage. The potential yield continued to rise reaching approximately 1,250,000 bbls. daily in July.

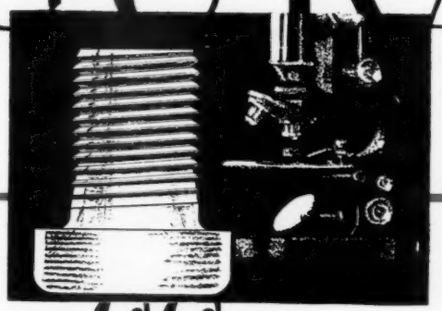
Developments in the deep horizons of southern Howard County, now known as the Roberts Pool, have forced the issuing of a proration order covering this section. Important discoveries were made north of the Hendricks Pool, but the owners preferred to shut down their operations. During the period immediately prior to the placing of the proration order on the Hendricks Pool, much oil was sold for less than the posted price of 60 cents a barrel. Proration has practically ended the construction of tanks throughout all of West Texas. Production from the area is well over 300,000 bbls. daily, but is being handled satisfactorily by the pipe lines that have been constructed, local refineries, and tank car shipments. With the completion of more pipe lines, the total will rise. Despite the enormous potential production, the posted price was increased on July 26 to 65 cents. This is still low although West Texas oil can never expect to equal in price the sweet oils of the sections to the east of it.

Present Condition

West Texas overproduction followed so rapidly after the overproduction at Seminole that the industry had no chance to reorganize itself. While some oil has been taken from storage in the past few months and there is a definitely stronger market for light oils and gasoline than there was in 1927, low grade crudes and ful oils are depressed by the actual and potential yields of West Texas and the growing exports of heavy oils from Venezuela. The development of flush oil in the deep horizons at Long Beach and Santa Fe Springs as well as in other California pools has prevented any relief from that section.

Great credit is due to the Railroad Commission of Texas and to the producers and purchasers who co-operated with it in the organization of workable pro-

ACCURACY



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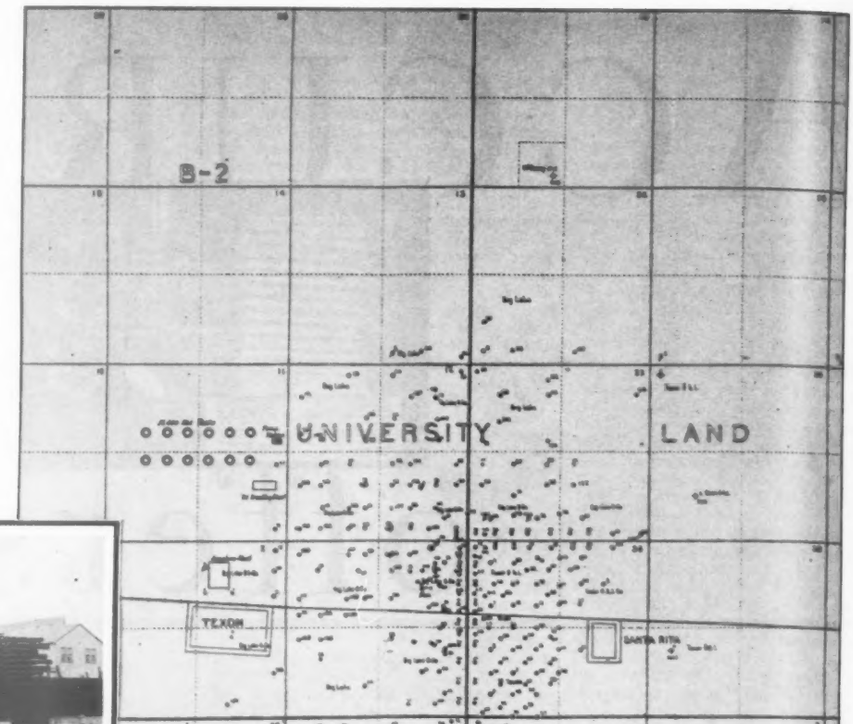

THE surface of wrought iron tubing, being somewhat uneven, grips and anchors the thick galvanizing on its surface with a great tenacity. This, in itself, is responsible for a considerable lengthening of the life of the material.

As the somewhat higher cost of Byers tubing is only in fractional ratio to its life, many producers are specifying Byers Tubing and Casing exclusively for service where a tendency to more or less rapid corrosion of ordinary tubing is observed.

The selection of oil drilling equipment depends largely upon soil conditions, and it therefore becomes necessary to pay special attention to the choice of tubing and casing material in fields showing a highly corrosive influence.

Where sulphide concentration prevails, and ordinary tubing gives way in a very short time, it has been found that genuine Wrought Iron shows a life greatly in excess of any other tubing. This condition is explained by the fact that genuine wrought iron, such as Byers, contains millions of particles of noncorroding silicate slag fibres, which act as natural barriers to the penetration of sulphur compounds. Ordinary tubing, on the other hand, has been seen to corrode rapidly and a little vibration soon is likely to cause failure.

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GENUINE WROUGHT IRON

Field Report

One prominent producer in this county, with 76 wells in production, has had wrought iron tubing in all the wells for about three years without a sign of corrosion trouble. This is typical of the results which may be obtained from Byers Galvanized Tubing, in spite of the high sulphide concentration in the district.

ration orders. However, it must be realized that these orders have not prevented the drilling of wells and that the potential production is continuing to rise and that new centers of production have been found whose possibilities still remain unknown. Oil is now coming out of West Texas as rapidly as transportation facilities will permit it to come. The porous lime horizons of the area may be compared to underground tanks, capable of producing oil up to the amounts allowed by transportation facilities. The presence of more than 1,700 producing wells at the beginning of August is sufficient to prove that the commission's orders did not bring a stoppage of drilling. While estimates of the future yield of an area like West Texas are of questionable accuracy, it would appear that sufficient oil has been discovered to support a daily yield greater than the present production for a number of years. Producers have obeyed the decisions of the Railroad Commission up to the present. Will they continue to do so if supplies of cheap oil from Venezuela prevent the increase in prices that they had expected to result from the limitation of production through proration? With the exception of the Big Lake Pool none of the developed sections in West Texas could escape the problems of overproduction if a single operator decided not to abide by the proration orders.

Co-operation in Future

The isolation of West Texas, the enormous totals of the potential production, the corrosive action of the oil on tanks, and the absolute inadequacy of transportation facilities to handle the possible yield, all served to ease the way for proration. In Seminole, producers found pools of large extent where they had expected small pools similar to those in the counties north of Seminole. The development of the first four pools was well under way before this difference was appreciated. The value of the oil was high and invited the construction of storage. Producers were fully aware that such oil would command a premium as soon as a decline should set in. The inability to curb production in Seminole, Bowlegs, Earlsboro and Searight may be traced entirely to the failure of producers to realize the importance of the areas until the number of completions made any attempt to stop wells on near-by leases impossible. The failure to hold to the original plans for the development of the northern portion of Little River may be traced to fear of the invasion of salt water and the decrease of gas pressure. The success in holding in check the production of the southern and larger part of Little River may be ascribed to the ability of the producers backed by the Corporation Commission to shut down discovery wells completely and then develop a plan of unified operation to which all could agree without fear of personal loss.

The history of the oil industry in American contains many stories of the failure of attempts to prorate and shut down developed areas which started with great promise. What will be the story of Yates, of Hendricks, and of Roberts Pool? Would it not be better to shut down and organize, and then drill as the operators in the southern extension of Little River did, rather than drill and then attempt to organize and shut down production to meet the limitations set by transportation facilities and markets? Oklahoma operators were fully alive to the possibilities of every wildcat well in the Seminole district—by the middle of 1927. Will they or producers in other states be as careful in preventing new pools from getting out of control in the future as they have been in the past year? As long as the oil industry continues to carry the burden of excessive stocks above ground, every new discovery must be considered as capable of producing that extra quantity of oil that initiates the collapse of a finely balanced price structure and must be treated accordingly.

CONSIDER DISTRIBUTION OF MIXED GAS AS LOGICAL

(Continued from Page 74)

to assist in meeting the demand on a gas system supplying a heating load.

I am of the opinion that the natural gas companies, to a large extent, have not met this peak load situation in the same general manner as have our friends the electric power companies, whose generating stations compare with our wells, gathering lines and compressor stations. They have designed and built their generating stations with spare capacity to care for emergencies, not only to the extent of carrying any peak load that might arise but to do this at a time when a principal generating unit might be out of commission for any reason.

Whenever manufactured and natural gas are mixed, we find gas holders made use of as a means of collecting manufactured gas to have it ready for use when needed. This in itself is a desirable standby. Such holders in my opinion should be as large as can be consistently invested in, all things taken into consideration, and should be so connected as to permit of their being filled with mixed gas, inasmuch as a holder full of mixed gas, as a standby in case of peak load, is far better for the distributing company than one full of manufactured gas at a time when pressures are low on the natural gas transmission line and perhaps cannot supply sufficient natural gas to mix in proper proportions with manufactured gas, to maintain a uniform B.t.u. in the distribution system.

As a rule, a gas distribution system supplying a heating load, carries a higher gas pressure, especially in the winter time, than is available from the average gas holder, and consequently gas boosters of some kind are necessary to pump gas from holder to distribution system or to the mixing stations, as the case may be.

Use of Mixed Gas

Investment in additional equipment, together with the operation of this equipment, results in increased operating expense to the distributing company, changing from straight natural gas to mixed gas, with the possibility of additional increases should the cost of manufactured gas be greater than that of natural gas.

Mixed natural and manufactured gas is distributed in quite a number of cities with complete success.

In Cincinnati we are equipped to mix natural gas with any or all of the manufactured gases as follows:

Producer gas containing approximately 140 B.t.u. per foot and .71 gravity.

Blue gas containing approximately 270 B.t.u. per foot and .66 gravity.

Carburetted water gas containing approximately 550 B.t.u. per foot and .64 gravity.

Coke oven gas containing approximately 430 B.t.u. per foot and .40 gravity.

I might add that we have not made use of producer gas for the past two years due to the much better results obtained from the more uniform specific gravity resulting from the mixtures of the other gases.

We can manufacture about 20,000,000 feet of carburetted water gas, or 12,000,000 ft of blue gas per day at one plant containing four 12-foot water gas sets and we purchase under contract from the Hamilton Coke & Iron Co. of Hamilton, Ohio, about 4,000,000 feet of coke oven gas each day.

We maintain our city supply of mixed gas the year round at between 850 and 900 B.t.u. per foot and endeavor to keep it as uniform as possible.

Mixing stations are maintained at four locations and although the mixing devices vary somewhat in design, one seems to be just as efficient as another.

On several occasions we have made tests at our storage holders under varying weather conditions to determine whether or not the mixed gas remained as it was supposed to, but we could detect no indication of stratification of gases in a still holder; in other words, a holder full of mixed gas with inlet and outlet valves closed.

The natural, with blue gas mixture, has a specific gravity of about .65; while the natural, with coke oven gas mixtures, has a specific gravity of about .55, and this variation seems to be sufficiently small to cause no trouble in the finely adjusted burners made use of by some of our industries. We have found, however, on one or two occasions, that a change from mixed gas to straight natural gas did cause considerable trouble in these installations with complaints from the customer.

I feel I am safe in saying that the troubles of the natural gas man are not over when he starts mixing gas, but on the other hand he has added some new responsibilities and has reduced by probably one-third the amount of natural gas he required from his supply line just prior to the change, but unless he has added substantial storage facilities in the shape of gas holders, he has not altered the percentage of fluctuation from summer load on the transmission lines to winter peak conditions, although he has reduced in cubic feet the amount of natural gas per hour that he required.

I assume that no one feels he is at liberty to venture a guess as to how long natural gas will be avilable, but in any event I believe it is conceded that the time will come, sooner or later, when communities now being served with natural gas will probably be served with manufactured gas and between now and then we will go through the stages of mixing the two in such proportions as the natural gas will permit. Consequently, the mixing of gases should not be looked upon as anything but a logical step to be taken by natural gas companies.

CANADIAN FIELDS

(Continued from Page 51)

drill. A bridge as hard as limestone was met 1,380 feet from the bottom of the hole. Okalta's No. 1 came in last November with an initial crude naphtha recovery around 600 bbls. a day, which has been shut off since the end of the year. Regent Oil Co.'s No. 1, LSD 16, Section 1-20-3w5, has resumed drilling in the deep lime after caving. Conseiderable light crude is being bailed.

Illinois-Alberta Oils' No. 2, LSD 14, Section 12-20-3w5, diamond drill test, is reported making new hole in the deep lime at 3,562 feet after shut-down for repairs. It got top of lime at 3,550 feet. It is close to Illinois-Alberta's No. 1, one of the steadiest deep lime producers, with a crude naphtha recovery averaging 80 to 85 bbls. a day for three years.

New McDougall-Segur Oil Co.'s No. 2 deep test, LSD 14, Section 12-20-3w5, got the deep lime at 5,058 feet and is setting and comenting 6¼-inch casing at 5,062.

British Dominion Oil Development Corp.'s No. 2, LSD 6, Section 12-20-3w5, has resumed drilling at 3,630 feet after bailing about 150 bbls. of light crude from the McDougall-Segur sand.

Calmont Oils' No. 1, LSD 2, Section 1-20-3w5, in the deep lime at 5,650 feet, was given a shot at 5,610 feet. The hole is being cleaned out, the bottom 25 feet being bridged. Wet gas and oil showings have apparently been increased. Calmont Oils' No. 2 will be started this spring.

Two Gas Flows

Spooner Oils' No. 2, Section 24-20-3w5, is drilling 40 feet in the deep lime at 5,110 feet with two gas flows in that horizon. Vulcan Oils' No. 1, LSD 11, Section 13-20-3w5, which has been frozen, has blown into production and is reported making its normal 100 bbls.

United Oils' No. 4, LSD 2, Section 24-20-3w5, has resumed drilling after derrick was destroyed by fire. The hole is in the Dalhousie sands at 5,370 feet, and is thought to be about 200 feet above the deep lime. It is blowing by heads and making around 75 bbls.; the 6-inch casing will be run and production taken between the 6 and 8-inch while drilling is continued to the lime.

McLeod Oil Co.'s No. 3, LSD 16, Section 1-20-3w5, is at 4,871 feet and waiting for a special socket to fish for lost drilling rods. McLeod's No. 4, same LSD, is drilling around 950 feet in the deep lime at 4,685 feet. McLeod's No. 1 is again in production and making between 100 and 120 bbls., while No. 2 has 20 bbls. from the lime.

Advance Oil Co.'s No. 5, LSD 16, Section 19-19-2w5, is below 3,000 and held up by repairs. East Crest Oil Co.'s No. 1, LSD 5-6, Section 16-19-2w5, is at 3,500 feet and running 10-inch casing to fish out the string of tools. Freehold Oil Corp., SW, Section 3-21-3w5, is at 2,540 feet and drilling past the string of tools lost when the old derrick burned.

Stockmen Oils, Ltd., No. 1, LSD 1-2, Section 27-20-3w5, was finished as a gasser at 1,760 feet, after drilling to 4,550 feet.

In the south end, A. H. Mayland and associates have purchased the Dutch-America interests in the Mill City Oil Co., representing a one-half interest. It is understood holdings to the extent of 260 acres will be developed by a new company to be known probably as Mercury Oils, Ltd., and that the contract for Mercury's No. 1 well has been let to the Union Drilling Co. Under the agreement with Mill City Oils, Ltd., the new interests secure the west half of Section 4-19-2w5, except LSD 14 on which the old Record well is situated. Mills City Oils will develop the E half of the same section. Officers of Mercury Oils, Ltd., include: President, A. H. Mayland; secretary treasurer, Charles Beggs; directors, F. R. McDonald, Vancouver; F. R. Webster, Calgary; A. McMillan and Thos. Roadhouse. Mercury's No. 1 will be located fairly close to the old Record well. The latter was started at the time of the Calgary boom of 1914 and carried to 4,300 feet, being ultimately abandoned with several strings of tools in the hole. The location is about 3 miles south of Home Oil Co.'s No. 1 gusher.

Aldersyde District

In Aldersyde district, south of Calgary, Ranchmen's Gas & Oil Co., LSD 16, Section 13-20-29w4, has resumed drilling after lowering 6-inch casing to 2,875 feet. Shows of oil and gas were encountered at this depth, and some gas in the upper horizons. The structure being tested is a fold further east than the recognized foothill belt of which the Turner Valley forms a part; and the results secured here will have an important bearing on further development work on these outlying folds. M. McGougan of Okotoka recently joined the Ranchmen's directorate. High River Oilfields, Ltd., will shortly start work on derrick west of High River, in LSD 6, Section 34-18-29w4. A shallow test some years ago got 200,000 feet of gas at 504 feet depth. New Federal Oil Co. has secured acreage in N half Section 22-20-28w4, and is reported arranging for a test this spring. The company was organized several years ago with $500,000 capital and office at Calgary to take over the assets of the old Federal Oils, Ltd. Dr. W. J. Birch is president and E. G. Pescod secretary-treasurer.

Richfield Petroleum, Ltd., of Calgary is reported starting work on a test on the Waite Valley structure, Section 35-20-4w5. The company has 2,900 acres. The structure is some distance west of the northern part of the Turner Valley field, and apparently parallels the Turner Valley structure. Drilling is expected to start early in May. The structure was reported on in 1913 by E. H. Cunningham Craig and J. H. Sinclair, and in view of its proximity to the west side of Turner Valley, is regarded as a fair prospect for oil at comparatively shallow depth. Norcon Oil Co. is starting a test in Section 28-20-4w5, west and a little south.

In Moose Mountain district, Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w4, is drilling near the base of the Dakota sand at 2,316 feet, with continued small shows of oil.

In the Skiff field, Imperial-Devenish's No. 3, offsetting No. 1 producer, is standing cemented on top of the Ellis sand at 2,947 feet, and is changing from rotary to cable tools to drill into production. The well has logged close with No. 1,

which had a reported initial production of 250 bbls. of heavy crude.

Beaver Dome

On the Beaver Dome, Madison Oils, LSD 10, Section 24-2-11w4, is again drilling below 800 feet, with a flow estimated at 5,000,000 feet. In the Cypress Hills field, it is reported that Eagle Butte Oil Co.'s No. 1, LSD 3, Section 31-7-4w4, which got a big gas flow at 3,340 feet, will be carried deeper for oil. It is also reported that Hudson's Bay-Marland Oil Co. will put down a wildcat test east of Vulcan, for which one of the Doherty drilling outfits will be moved from Pincher Creek.

In the Chin district, Lethalta Oils, LSD 5, Section 33-8-18w4, is down approximately 2,400 feet. It is reported the test will be drilled deeper this season.

In the Pincher Creek district, southwestern Alberta, Alberta Gas & Fuel Co.'s Doherty No. 3, Section 11-6-2w5, is reported drilling below 3,700 feet. This company is also doing some core drilling. Weymarn Oils, Ltd., is preparing to resume work on Mount Royal Oil & Gas Co.'s No. 1, LSD 4, Section 7-6-1w5, which has been shut down for more than a year at 1,000 feet. It is expected to get production in another 600 feet of drilling; and if so two additional tests will be put down this season. The company has secured 4,600 acres. In the Turner Valley field 160 acres have been secured in the New Black Diamond section, and it is understood the New Black Diamond Oil Co.'s test in LSD 1, Section 3-20-3w5, standing at 1,380 feet, will be completed. Four tests are planned on this acreage. In the Mercoal district, in the foothills east of Edmonton, where 2,000 acres have been secured, one test will be drilled. In the Clearwater district, northern Alberta Weymarn's No. 1, shut down at 500 feet last fall, will be drilled deeper; and if encouraging a second test. Here the company holds 4,000 acres. In the Wainwright Field holdings have been secured in Township 47-5w4; a geological survey and core drilling operations will be started this spring, and possibly a commercial test in the summer.

Wainwright Field

In the Wainwright Field, east-central Alberta, Wainwell Oils' No. 2, LSD 15, Section 36-44-7w4, blew into production at 2,028 feet as a big gasser. The pressure blew a 40-foot bailer through the top of the derrick. Early estimates placed the flow at between 25,000,000 and 40,000,000 feet. Some claim as high as 150,000,000 feet. Coring before the well was drilled in indicated a good oil sand 9¼ feet thick, and it is possible oil production will develop. Wainwell Oils' No. 1, LSD 9, same section, will likely be deepened to the lower sand as soon as No. 2 is got under control. Wainwell Oils' No. 3, LSD 9, Section 36-33-7w4, is being put on the pump, but no estimate of the production has been given. Sasko-Wainwright Oil & Gas Co.'s No. 1, LSD 1, Section 19-45-6w4, three miles north of Wainwright, is being drilled into production, after cementing on top of the oil sand at 2,242 feet.

In the Viking Field, Hudson's Bay-Marland Oil Co.'s No. 2 will start drilling a mile east of No. 1 gasser, as a test of the Viking sand. No. 1 was discontinued at 3,040 feet after drilling 600 feet into the lime, and is being finished as a gasser from the Viking sand. The gas production is being taken by Northwestern Utilities, Ltd. Failure to secure deep production in No. 1 is taken to indicate there is no chance of oil or of deep gas in the Viking Field.

New Drilling

The coming spring will witness a great deal of new drilling in various parts of Alberta, with interest centering in the Turner Valley Field. In the latter area, Royalite Oil Co.'s No. 23 has just spudded in, and No. 24 is rigged up. Foothills' No. 3 is also spudding in. East Crest Oil Co.'s No. 2, Alberta Pacific Consolidated's No. 1, Sterling-Pacific's No. 1, Commonwealth Petroleums' No. 1 and probably Home Oil Co.'s No. 5 will likely be started early this spring in the south end. In the central section, Midfield Oil Co.'s No. 1 will be drilled on proven acreage between the McLeod and Okalta wells, while Calmont Oils' will spud in its No. 2, probably close to No. 1. Illinois-Alberta Oils' No. 3 will start drilling as soon as No. 2 is finished, and Spooner Oils has already located its No. 3 test, which will start work on completion of No. 2. Seneca Oils will probably start its No. 2 this summer, and as soon as United Oils finishes its No. 4, work will begin on No. 5. It is likely a number of other tests will be started before midsummer. In particular, Dalhousie Oil Co.'s No. 7 is expected to begin work, and if the reorganization of the old Mid West Oil Co. is put through, that company will do some drilling. In the south, Mercury Oils, Ltd., will test acreage close to the old Record well. Following the big results secured at Home Oil Co.'s No. 1, the south end is being given a strong play.

The spring months will see two new tests drilling in the Aldersyde-High River area, two on the Waite Valley structure, and two in the Rickert Field. Some work will be done on the Sinclair structure, where the Warner Oil Co.'s No. 1, LSD 3, Section 28-18-3w5, shut down last fall at 120 feet. New work in the Border fields depends on the results secured from these now in progress, except that Ko-Top Oils, Ltd., of Calgary will this spring go ahead with the actual drilling of its test on the Red Coulee structure, east of Coutts.

The Morley Reserve near Calgary and the adjacent Moose Mountain district have a number of unfinished tests, of which Signal Hill Oil Co.'s No. 2 is alone active. Several others will resume in the spring, and some should be completed this season. The Wainwright Field in east-central Alberta is expected to see considerable activity in view of the encouraging results secured by Wainwell Oils, Ltd.

LA.-ARK. WILDCATS

(Continued from Page 49)

No. 1 Ellerbe, in Section 18-15-12, 3 or 4 miles west and south of some small gas wells drilled by The Texas Company and Woodley & Collins in the Caspiana district. Dixie Oil Co. is preparing to resume work on No. 92 Dillon, Section 14-21-15, which has been shut down at 6,099 feet since December waiting on a string of flush collar 4½-inch drill stem. At this depth it had a show of several million feet of rich gas and bridged, twisting off drill stem at 5,903 feet in knocking out the bridge. This was got out and the hole is in good shape to resume work for a test. Magnolia Petroleum Co.'s No. 1 Fortson in Section 4-12-11, DeSoto Parish, had a show of 1,000,000 feet of gas in the shallow Naborton horizon and is setting liner for a test at 748 feet.

The McDonald wells on the Wilson farm in Section 25-15-18, Ouachita County, Ark., are still the center of attraction. McDonald Brothers' No. 1 Wilson is not improving with age while waiting for standard rig to pump. Bailed early in the week to 300 feet of the bottom, it yielded about 40 bbls. of oil from 1,500 feet of fluid. Bailed again yesterday to 100 feet of the bottom it produced about the same results. On the last trip the bailer went to the bottom and came back with about half a joint of hot salt water. It has about 1 foot of sand, total depth 2,828 feet. C. H. McDonald's No. 1 Wilson with 6⅝-inch cemented at 2,853 feet drilled out 6 feet of rathole in broken sand from 2,854-60 feet and street talk today was that he had a well but nothing has been heard from scouts watching the test. Louisiana Oil Refining Corp.'s semi-wildcat on the edge of Stephens Townsite, No. 1 Manly, Section 15-15-19, topped the Nacatoch at 1,481 feet, cored saturated oil sand from 2,166-68 feet, the regular Stephens pay, and sand with streaks of shale from 2,168-79 feet and is arranging for a drill stem test at 2,171-81 feet, total depth 2,683.

Ouachita County Test

Two new blocks in Ouachita county appeared during the week, A. L. Wesson has 1,500 acres centering on Section 12-15-19, two or three miles northeast of the Louisiana test, on which he is planning to start a 3,000-foot test about April 8.

What is said to be the first well drilled under the unit plan is in prospect at Eagle Mills, 15 miles northeast of Camden where Amerada Petroleum Corp.'s Empire Gas & Fuel Co., Phillips Petroleum Co. and The Texas Company have been busy for some time assembling 10,000 acres of which they have 8,000 and expect to get the remaining 2,000 and start a 3,500-foot test on a machine high within the next few weeks. The work has been delayed by widely scattered ownerships. When a previous block in the same territory was divided after the enterprise failed it was split into small 20 and 40-acre parcels, the owners of which are by now scattered all over the country. Location of the test will be in or close to Section 14-12-16, it is expected.

Ashley County Test

The Texas Company's No. 1 Keifer, Section 11-18-4, Ashley County, is drilling hard rock at 3,286 feet without having found the top of the red beds yet. J. G. Marcum's No. 1 DeYampert, Section 5-19-4, topped the red beds at 3,103 feet and picked up sand from 3,156-59 feet that showed a slight trace of oil and is drilling hard rock at 3,338 feet. Slight as it was, this trace is the first "show" obtained in any of the present series of red bed tests drilled on south Arkansas machine highs during the past several months and helps confirm the disinclination to condemn the territory, Ashley County at any rate, on the strength of The Texas Company well's failure to find the red beds at all. The theory appears to be that the igneous formations struck in previous wells are plugs instead of there being a ridge traversing the territory.

There is still considerable faith in the possibilities of the area, for instance, J. P. Evans has bought 15-16 of the mineral rights on all the Arkansas Timber and Land Co.'s 32,000 acres in Ashley, Calhoun, Bradley and Union Counties and different royalties on 9,000 acres additional in the same counties.

In Calhoun County Hurley and others' No. 1 Arkansas Timber Co., Section 29-16-12, is shut down at 3,300 feet waiting for floodwater from the Ouachita River to back down off the lease.

Helena Oil Co., or McFann, trustee, is reported to have approximately 7,500 acres in the west half of Township 19-22 Columbia County, around Taylor, on which it is planned to drill three wells, the first of which is reported as No. 1 Pickler, SE cor. SW SE, Section 19-19-22, drilling at 300 feet, but this is not verified.

Mississippi and Alabama

No news came out of Mississippi and Alabama this week. Atlantic Oil Producing Co.'s No. 1 Houston, Section 30-11-6, Sharkey County, is shut down in shale and gumbo at 3,209 feet. It had just started work after recovering from a boiler explosion a week or so ago when another fatal accident happened. Two members of one of the crews were killed when a pair of elevators fell on them. Greer and others have rig up on their No. 1 Long-Bell & Bollinger in Section 28-10-4w, Choctaw County, Alabama, and probably are making hole by this time.

Gulf Refining Co. cored sand from 3,101-15 feet which showed considerable gas in No. 1 Carraway, J. H. Patterson survey of Shelby County, Texas, broken sand and shale 3,115-18, hard blue shale and streaks of sand 3,118-22 feet, and is coring on down. It is the first showing this test, which is not conforming to what the log of the producer on the Pickering land about 2 miles southwest showed.

Beside the Dixie's well in Claiborne Parish two other wildcats were abandoned this week, Mid-American Petroleum Co.'s No. 1 Yerger, Section 51-16-14, Madison Parish, standing at 285 feet since last August. This was the second hole, the first having been junked at 1,690 feet. Sam Sklar's semiwildcat in Section 19-15-15, Smackover district of Ouachita County, Arkansas, No. 1 Laugley, was abandoned as a dry hole at 2,060 feet.

NORTH LOUISIANA

Bienville Parish

W. P. Wallace's No. 1 State, Section 16-16-10, is drilling at 2,410 feet.

Bossier Parish

Woodmansee and others' No. 1 Bollinger, Section 9-22-11, is drilling at 2,060 feet.

Caddo Parish

D. C. R. Oil Co. cored sand showing gas and salt water at 1,940 feet but did not test No. 1 Hunter, Section 17-19-14, and shut down at 2,017 feet. NeMoun Corp. made location and has derrick up for No. 1 Ellerbe, 2,317 feet south and 1,700 feet west NE cor. Section 18-15-12.

Claiborne Parish

El Dorado Chief Oil Co.'s No. 1 Baker, Section 26-20-7, cored hard sand and sandy lime at 2,904-08 feet.

DeSoto Parish

Benedum & Trees Oil Co.'s No. 1 Mahoney, Section 22-14-12, is drilling at 1,450 feet and No. 1 Nicholson, Section 2-15-14, is drilling at 1,340 feet. Carlton Drilling Co.'s No. 1 Stevens, Section 12-11-16, is shut down at 2,040 feet. Luke Case and others are drilling at 2,300 feet on No. 1 Boatright, Section 3-10-13. DeSoto Syndicate set 60 feet of 10-inch surface pipe on No. 1 Holmes, Section 20-13-16, and is drilling at 850 feet; No. 1 Williams in Section 29-13-16, is a rig.

Longstreet Syndicate lost part of the casing in attempting to set and has a fishing job, total depth 2,802 feet. Magnolia Petroleum Co. had a show for 1,000,000 feet of gas in No. 1 Fortson, Section 4-12-11, and is setting liner to test, total depth 748 feet. R. O. Roy's No. 1 Sample, Section 1-13-14, is shut down at 2,300 feet.

East Carroll Parish

Palmer Corp. has rig up for No. 2 O'Brien, 1,220 feet north and 3,960 feet west SE cor. Section 6-19-11.

Grant Parish

Jack Moffatt's No. 1 Ball (formerly Carter & Collins) Section 29-7-1w, cored sandy shale at 1,128 feet. L. C. Swope and others set 100 feet of 10-inch casing on No. 7 fee, Section 18-9-1e.

Lincoln Parish

Shaw and others had a show of gas and are arranging to test at 915 feet on No. 1 Voss, Section 1-20-3w .

Monroe District

Morehouse Parish—Woodley & Collins' deep test, No. 1 Harp, Section 22-22-7, is drilling sand rock at 1,885 feet.

Ouachita Parish—Phillips and others' No. 1 School, Section 16-16-4, is drilling at 3,160 feet.

Union Parish—Cammatte and others' No. 1 Security Trust, Section 21-22-1e, is coring at 1,845 feet. Sundby and others are shut down at 2,100 feet on No. 1 Security Trust, Section 6-23-1e.

Natchitoches Parish

S. D. McDaniels set 118 feet of 12½-inch on No. 2 Clark & Morse in Section 23-5-6, and is drilling below 500 feet. Robeline Oil & Gas Co.'s No. 1 Cassady, Section 7-8-9, is shut down at 2,700 feet repairing rig.

Richland Parish

Austin & McDonald have rig up for No. 1 Millsaps, Section 17-17-6. Richland Operating Co. set 12-inch at 196 feet on No. 1 S. R. Humble, Section 30-16-7, and Wilson and others cemented 8-inch at 910 feet on No. 1 Buie in Section 17-15-7.

Sabine Parish

R. L. Gay's No. 2 Bowman-Hicks, Section 14-7-14, is drilling at 2,300 feet and No. 1 Sabine Lumber Co., Section 13-7-14, is drilling at 2,650 feet.

ARKANSAS

Ashley County

J. G. Marcum's No. 1 DeYampert, Section 5-19-4, is drilling at 3,200 feet and The Texas Company's No. 1 Kiefer, Section 11-18-4, at 3,286 feet.

Calhoun County

Joe Hurley and others' No. 1 Arkansas Timber Co., Section 29-16-12, is drilling at 3,232 feet.

Drew County

Ohio Oil Co.'s No. 1 Jerome, Section 13-15-4, is in limey shale at 1,980 feet.

Logan County

Arkansas Natural Gas Corp. has loca-

tion for No. 1 O. H. Hanna, 560 feet south and 660 feet east, NW cor. NW NE Section 26-7-23; No. 1 Parks, Section 26-8-24, is underreaming 5 7/16-inch casing set at 4,220 feet, total depth 4,240 feet.

Miller County

E. A. Martin's No. 4 Dale, Section 23-15-26, is shut down at 3,250 feet.

Ouachita County

J. E. Crosbie's No. 1 Goodwin, Section 13-15-16, is drilling at 2,419 feet. Louisiana Oil Refining Corp. topped the Nacatoch at 1,481 feet on No. 1 Manly, Section 15-15-19, and drilling lime at 2,000 feet. C. H. McDonald's No. 1 Wilson, Section 25-15-18, set 6⅝-inch at 2,853 feet to test 6 feet of sand, total depth 2,868 feet.

Union County

Bell and others' No. 1 Terrell, Section 27-18-14, is drilling at 2,594 feet. T. J. Bush is drilling No. 1 McDonald, Section 11-17-18, also carried as Arkansas Drilling Co.'s No. 1 McDonald, at 2,000 feet. E. L. Foster has location for No. 1 Smith, 450 feet east and 150 feet south, NW cor. NW SE, Section 8-16-17.

St. Francis County

W. F. Harris made location for No. 1 Halbert, 786 feet north and 206 feet west, SE cor. SE SW, Section 32-4-4.

EAST TEXAS

Marion County

Trimount Petroleum Co.'s No. 1-A Mebane & Stiles, N. Gupton Survey, drilling hard lime and pyrites at 1,958 feet.

Shelby County

Gulf Refining Co.'s No. 1 Carraway, J. H. Patterson Survey, bailing 8-inch casing, total depth 3,096 feet.

ALABAMA

Choctaw County

Greer and others have rig up for No. 1 Long-Bell in Section 28-10-4w.

GULF COAST

(Continued from Page 53)

making only gas and salt water. It is being worked over. Also on the east flank, Navarro Oil Co.'s No. 3-A Cain made a 500-bbl. producer after being plugged from heaving shale at 6,030 feet to a sand at 4,011 feet.

Navarro Oil Co. and Texas Exploration Co.'s joint No. 14 Dooley late in the week picked up a sand showing oil at a total depth of 4,532 feet and is preparing to test. This is an offset to Gulf's No. 2 Fitzsimmons-Hamman. The same operators' No. 4 Dooley is drilling lime and shale at 3,549 feet. Navarro Oil Co. and Humble Oil & Refining Co.'s joint No. 2 Dooley is drilling sticky shale and lime at 4,428 feet. Gulf Production Co.'s No. 28 Taylor is drilling hard sandy lime at 1,912 feet. Its No. 23 Taylor, an old well being deepened, is drilling below 4,843 feet.

On the north and west flanks, Anderson and Plummer's No. 5 Whitehead is drilling hard sand rock at 1,325 feet. Moody Corp.'s No. 4-B Whitehead is drilling gumbo at 2,134 feet. Rio Bravo Oil Co.'s No. 12-A Settegast (West) is drilling sand, shale and boulders at 2,350 feet and No. 13-A Settegast is drilling shale at 4,093 feet. The latter company also is preparing to work over No. 7-B Settegast. Reece Wolfe's No. 1 Herman is drilling lime rock at 2,835 feet.

T. G. Shaw and Texas Exploration Co.'s No. 3-E Fitzsimmons on the northeast made a 1,200-bbl. well at 4,581 feet after being deepened from 4,425 feet, where it formerly produced a similar amount. Forty feet of strainer was set and production was through a three-eighths-inch choke and pressure was 600 pounds. The same operators' No. 2 Fitzsimmons-Hamman is drilling lime at 3,446 feet. These tests are just to the northwest of Gulf's Fitzsimmons tests and Navarro's operations.

Barbers Hill—Chambers County

Humphreys Corp.'s No. 1 Cornelia Barber, deep test on the southeast flank, which came in Wednesday flowing initially at the rate of 92 bbls. an hour (2,208 bbls. daily) through a five-eighths-inch choke, was holding up remarkably well Saturday, flowing better than 2,000 bbls. daily. The oil is 26.7 gravity and is from sand at 5,194 feet. Humphreys' No. 6-B Kirby, which tested salt water at 5,761-5,808 feet is to be plugged to a sand at 5,376-5,416 feet but at present is changing rigs. The rig now on the well is owned by Mills Bennett Production Co., which company is moving the rig to its No. 2 Smith on the tract in which the first important deep well on the southeast flank was drilled. The latter company's No. 1 Means is drilling shale and lime at 4,427 feet, but its No. 2 Kirby, which went to a total depth of 5,969 feet, is to be plugged back to approximately 5,360 feet and sidetracked.

Offsetting Bennett's Smith tract, Rexall Oil Co. (Mike Kouri) has a hole full of oil\in No. 1 Shaw, the latter having tested a shallow sand at a total depth of 2,066 feet. Joe Bashara's No. 1 Tarbutton is drilling sand and lime at 4,944 feet. Humphreys Corp. has made location for No. 5-A Kirby, 30 feet from its No. 4-A.

On the recently opened southwestern flank where Yount Lee Oil Co.'s No. 1 Chambers possibly has set a record for Barbers Hill in holding up production with it still flowing better than 3,900 bbls. daily, the same company's No. 2 Chambers is drilling gumbo and lime at 3,625 feet, No. 3 Chambers in gumbo and lime at 3,225 feet and No. 4 Richardson in sand and lime at 1,827 feet. Sun Oil Co.'s well offsetting No. 1 Chambers is drilling below 2,748 feet and Gulf Production Co.'s No. 1 Fisher is drilling lime and shale at 3,423 feet.

Bennett Petroleum Co.'s No. 1 Barber on the north side of the dome is drilling gumbo at 1,507 feet.

Boling—Fort Bend and Wharton

Developments on the wildcat, east side of the Boling Dome, which have turned out unfavorably recently were all the more discouraging the past week when two more tests tested salt water, these being Sun Oil Co.'s No. 4 E. C. Farmer and No. 2 Rogers. The former now is perforating casing in an effort to test slightly higher up while No. 2 Rogers is pulling two joints of screen to deepen from the present depth of 4,012 feet. South Texas Petroleum Co.'s No. 1 Fotjeck-Hyde, which tested salt water several weeks ago is drilling deeper in shale at 4,068 feet. Gulf Production Co.'s No. 5 Bay also was a recent failure in heaving shale at 4,276 feet.

Other operations on the east side of the dome include Scott & Peck's No. 1 Armstrong, drilling shale at 4,298 feet; The Texas Company's No. 1-A Dipple, drilling sticky shale at 3,900 feet; the latter's No. 1-B Dipple, drilling lime and gyp at 3,675 feet, and the same company's No. 1 Pleasants, drilling sand at 395 feet.

Vacuum Oil Co.'s No. 1 Taylor on the south side of the dome is expected to make a small pumper in the sand at 2,920-42 feet, where it has been bailing and swabbing for the past 10 days. Oil is standing in the hole and it made one head of around 25 bbls. but would not flow any more. Tubing is being run. This hole had been plugged from salt at 3,177 feet.

DeWalt—Fort Bend County

An expected well at DeWalt failed to materialize and it now is drilling deeper. This is Humble Oil & Refining Co.'s No. 1 Camp, which is drilling deeper in hard sand at 3,603 feet. This company's No. 5 Sugarland is drilling hard sand at 3,320 feet and its No. 6 Sugarland is spudding in. No. 2 Nelson is drilling sand and gravel at 366 feet, No. 2 Brazos Farms, shale and lime at 2,954 feet; No. 3 Brazos Farms, sticky shale at 2,900 feet; No. 4 Brazos Farms, rock at 1,128 feet; No. 1-A Bankers Mortgage, sand rock at 1,216 feet. Rigs are up for No. 2 Camp and No. 5 Brazos Farms.

Humble—Harris County

Oil showing sands have been picked up by two more deep tests at Humble, one on the south edge of the field and the other on the north. South Texas Petroleum Co., which recently revived interest in future possibilities of Humble by the opening of prolific production from a new deep sand in two wells, has cemented 9¼-inch casing in its third deep hole, No. 3 Morris, and as the week closed was drilling plug. This is at a total depth of 4,110 feet. On the north, The Texas Company will test an oil showing sand and shale at 4,278 feet, a string of 6⅝-inch casing having been cemented at 4,115 feet. The latter's No. 14 Koehler on the north, an old well being deepened, is standing after trying to sidetrack drill stem lost in the hole but this company's No. 39 Stephenson, offsetting South Texas Petroleum Co.'s Morris tract on the south side of the field, is drilling shale and lime at 3,381 feet. Operations in the latter sector also were marked by the entrance of Humble Oil & Refining Co. with a location for No. 1 Williams, which now is rigging up.

Blue Ridge—Fort Bend County

An unusual test for the Gulf Coast is Humphreys Corp.'s No. 5 West-Schenck on the south edge of Blue Ridge which late in the week was swabbing to test in the heaving shale at 4,171-81 feet. Total depth of this hole is 4,190 feet and the bottom is believed to be on cap rock. Very few tests ever have been able to drill through as much heaving shale as this test did, let alone try to test showings. Moody Corp.'s No. 6 West-Schenck in the same area tried to make a well in a sandy shale at 3,957 feet but after setting strainer the well would not flow. It probably will be deepened.

Other operations at Blue Ridge were routine making of hole as follows: Gulf Production Co.'s No. 7 Invincible, east side, drilling gumbo and lime at 1,445 feet after setting 10-inch surface string at 1,280 feet; the latter's No. 17 Bassett Blakely, same area, drilling below 1,000 feet; South Texas Petroleum Co.'s No. 1 Blakely, a former producer, pulling screen to deepen; Blakely & Means' No. 2 Blakely, north side, drilling shale and lime at 2,243 feet; Navarro Oil Co.'s No. 6-B Robinson, sand and shale at 507 feet.

Big Creek—Fort Bend County

The Texas Company's No. 4 Wheat is sidetracking in rock at 1,789 feet. Navarro Oil Co.'s No. 3 Davis is drilling sandy, lime rock at 991 feet and Gulf Production Co.'s No. 52 Davis is drilling in sand and boulders below 300 feet. Gulf is pulling screen to deepen No. 31 Davis.

Goose Creek—Harris County

Humble Oil & Refining Co.'s No. 75 Simms-Smith, a deep wildcat test, is drilling gumbo at 2,598 feet. Gulf Production Co.'s No. 8 John Gaillard, an old well deepened to 1,856 feet was put on the pump making 100 bbls. of net oil daily. Its No. 15 Beaumont, another old well, is drilling at 1,823 feet and No. 25 Ashell-Smith is pulling screen to deepen. Atlantic Oil Producing Co.'s No. 20 Gaillard probably will be put on the pump at 2,842 feet.

Spindletop—Jefferson County

There was little of interest at Spindletop with only a few small wells being completed. Yount Lee Oil Co.'s No. 91 McFaddin was brought in flowing 700 bbls. daily from sand at 4,243 feet. No. 23 fee also came in for 700 bbls. daily at 4,137 feet, as did No. 4 Davis at 2,671 feet but the latter soon sanded up. The fee and Davis wells are workovers. Nos. 81 and 82 were preparing to test Saturday, the former at 3,247 feet and the latter at 3,071 feet.

Other operations are: Yount Lee Oil Co.'s No. 29 McFaddin, drilling shale at 4,162 feet; No. 90 McFaddin, sidetracking at 2,306 feet; No. 93 McFaddin, trying to sidetrack at 2,475 feet; No. 94 McFaddin, drilling sand and shale at 3,913 feet; No. 95 McFaddin, reaming to test a sand at approximately 2,500 feet; No. 96 McFaddin, drilling sand and gravel at 743 feet; No. 97 McFaddin, rigged up; No. 74 Gladys City, drilling shale and lime at 5,505 feet; No. 76 Gladys City, drilling sand and lime at 4,812 feet; No. 80 Gladys City, sand and lime at 3,720 feet; No. 83 Gladys City, drilling gumbo at 1,764 feet. Others are unchanged over previous reports.

SOUTH LOUISIANA FIELDS

Lockport—Calcasieu Parish

Vacuum Oil Co.'s No. 20 Miller, a former well at 3,620 feet deepened to 3,692 feet, failed to flow under swabbing but is standing in oil 1,800 feet from the top and will be pumped. No. 23-A Miller has set 6¼-inch casing to test a shallow sand at 1,060 feet. Vacuum's No. 13 Miller at a total depth of 4,405 feet is trying to sidetrack hole at 3,478 feet. No. 24 Miller is standing rigged up. No. 4-A Farquahar is drilling sticky shale at 5,408 feet; No. 1 Henshaw-LeMoin is drilling water sand at 5,740 feet and No. 5 Bayou D'Inde gumbo below 1,000 feet where surface casing was run. Shell Petroleum Corp.'s No. 1 Miller is drilling sand at 2,771 feet.

Jennings—Acadia Parish

E. F. Simms' No. 2 Cockrell, deep test on the west flank, is drilling sandy shale at 3,845 feet. This is the only test of the four deep tests started by this operator which is making hole, all others being delayed by fishing or cleaning jobs. On the east side, Yount Lee Oil Co.'s No. 4 Crowley is in sand and shale at 4,956 feet and No. 6 Housierre-Latrielle in lime and shale at 6,159 feet. Jennings Petroleum Co.'s No. 2 Eunice Crowley is trying to set strainer in hard sand at 4,210 feet.

Edgerly—Calcasieu Parish

Hercules Oil Co.'s No. 4 Paraffine, a former well worked over and deepened to 3,046 feet, was brought in during the week flowing 300 bbls. of oil daily. Rex Petroleum Co.'s No. 9 Hunter is drilling deeper at 3,661 feet, and Wilson-Broach's No. 2 Wilson, which tested salt water at 3,639 feet, is trying to sidetrack. Green Oil Co.'s No. 6 Moore is drilling at 2,578 feet.

Vinton—Calcasieu Parish

Vinton added a good well the middle of the week in Gulf Refining Co.'s No. 44 Star-Vincent which, deepened to 3,156 feet, came in flowing an estimated 1,000 bbls. daily. The latter company's No. 67 G. and N. Gray, a workover, is drilling at 2,473 feet. Vinton Petroleum Co., following the recent completion of No. 1 Matilda Gray as a good well, has rigged up and is starting drilling on No. 2. Marrs McLean's No. 12 Gray is drilling gumbo and lime at 1,856 feet and Vinton Petroleum Co.'s No. 21 Vincent is rigging up.

Sulphur—Calcasieu Parish

Union Sulphur Co.'s No. 736 fee has drilled into a sand showing oil at a total depth of 4,933 feet and has set 6¼-inch casing to test. No. 739 fee is drilling salt at 2,747 feet, No. 740 fee is drilling sand at 5,680 feet and No. 741 fee, rock at 2,698 feet.

Miscellaneous Fields

Rycade\Oil Corp. and Humble Oil & Refining Co.'s No. 6-A Kountze, Markham, is drilling sandy lime at 1,486 feet. South Texas Petroleum Co.'s No. 1 Trull, same field, is drilling below 947 feet. Gulf Production Co.'s No. 3 Tom Hogg, West Columbia, a workover, is drilling at 3,015 feet. The latter company's No. 18 Moore, Orchard, is drilling gumbo at 3,189 feet. Sun Oil Co.'s No. 1 Kovelieka, North Dayton wildcat, tested salt water at 4,617 feet and has been abandoned.

Yount Lee Oil Co.'s No. 4 Louisiana Petroleum Co., Anse La Butte, St. Martin Parish, is drilling sand and shale at 3,781 feet. Gulf Refining Co.'s No. 11 United Land Co., first deep test at Sorrento, Ascension Parish, is drilling at 2,934 feet. The latter company has started drilling on its No. 14 Lutcher-Moore at Starks and is rigging up on No. 15 Lutcher-Moore and No. 13 Industrial. Pure Oil Co. is preparing to deepen Nos. 7 and 8 Yount Lee Oil Co., Sweet Lake, Cameron Parish. Both failed to make commercial producers, the former at 4,594 feet and the latter at 4,475 feet.

MISCELLANEOUS WILDCATS

Texas

Brazoria County — Shell Petroleum Corp. worked over its No. 4 Allen, a former producer at Allen Dome, and after bailing and swabbing it came in flowing initially at the rate of 157 bbls. daily and later increasing to 223 bbls. It is producing from its former completed depth at 5,109 feet. This company's No. 3 Reece is drilling sticky shale and lime at 4,940 feet. Humphreys Corp.'s No. 1 Bryan, Bryan Heights, is drilling sand and shale below 1,971 feet. Empire Gas & Fuel Co.'s No. 2 Brock, Stratton Ridge, is drilling cap rock at 3,642 feet. Meyers and associates set 3-inch screen in their

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No. 2 Clemens, Clemens Dome, and bailed dry at 942 feet.

Calhoun County—B. F. Thompson's No. 1 Thomas is preparing to resume drilling at 2,388 feet and is washing to bottom. This test is 10 miles west of Port Lavaca.

Chambers County — Gulf Production Co.'s No. 1 Willborn, Hankamer, is drilling shale below 5,340 feet. Pure Oil Co.'s No. 1 Mayes, Lost Lake Dome, Sunday was running a sand testing tool to make a drill stem test of a rich appearing oil sand at 2,052-67 feet. This company's No. 2 Lost Lake is drilling cap rock at 4,032 feet.

Fort Bend County—Gulf Production Co.'s No. 14 Wolf, Long Point, is in a lime, shale and sand formation with an odor of oil at 602 feet. South Texas Petroleum Co.'s No. 1 Hartfield, Needville, is drilling sand at 6,031 feet.

Galveston County—Republic Production Co.'s No. 1 Lobit, Dickinson, is drilling shale at 4,263 feet. Long and associates' No. 1 Irwine & Bishop, Dickinson, is standing.

Harris County—Humble Oil & Refining Co. has decided to deepen its No. 1 Minnetex, Mykawa, which tested salt water at 5,497 feet, and is drilling shale at 5,638 feet. This company's No. 5 Warren at Hockley is drilling gummy shale at 2,907 feet. South Texas Petroleum Co.'s No. 1 Hicks, Almeda, is drilling hard sand at 4,286 feet. Paxton & Pundt have a rig up for No. 1 Brown on the Wooster Townsite. Little York Oil Co.'s No. 1 Davis, H.&T.C. Survey, Block 1, extreme northern part of the county, is drilling sandy gumbo at 2,002 feet. Baldwin and associates' No. 1 Kitsman, Cypress, is shut down.

Jackson County—The Texas Company's No. 1 Moore, D.&G.N. Survey No. 311, 16½ miles north of Edna, is reaming. Bottom of the hole is in shale at 3,335 feet. Wright Brothers have abandoned their No. 2 Classen at Edna. It was dry in shale at 3,942 feet.

Jefferson County — Gulf Production Co.'s No. 6-A Bordages, Fannette, is drilling sand and lime shale at 5,220 feet. No. 7 Bordages, Fannette, is drilling gumbo at 621 feet and No. 11 Thomas is down 1,100 feet where surface casing has been set. The Texas Company's No. 1 Pipkin, Big Hill, is fishing at a total depth of 4,975 feet. Yount Lee Oil Co.'s No. 1 Nona Mills, Hillebrandt Survey, is drilling gumbo and lime 3,027 feet. River Oil Corp.'s No. 1 Ship Channel, 2 miles southeast of Beaumont, has resumed drilling and is in gumbo at 1,417 feet. I. W. Farhar and associates' No. 1 Rohwedder, 5 miles northeast of Beaumont, drilled through a water sand at 2,460 feet.

Liberty County—The Texas Company's No. 2 Davis, Davis Hill, is drilling gumbo and lime at 2,827 feet. Union Exploration Co.'s No. 2 Esperson, Fisher Survey, tested salt water at 3,440-57 feet and after pulling screen is going a few feet deeper and set screen for another test. Humble Oil & Refining Co.'s No. 4 Sterling, Moss Bluff, is rigged up.

Matagorda County—Crossland and associates' No. 1 Hawkins, Shepherd's Mott, is in a sand and lime showing oil at 3,802 feet and is setting casing to test. Griffith and associates' No. 1 Culver, Citrus Grove, is drilling blue shale at 1,944 feet.

Waller County—The Texas Company's No. 1 Young on the Young prospect is drilling gumbo at 448 feet.

Orange County—The Texas Company's No. 1 Kuhn, Port Neches prospect, is shut down at 778 feet hauling mud.

South Louisiana

Ascension Parish—Burnside Oil Co. is rigging up for No. 2 Paul Robert, 300 feet from No. 1 recently abandoned. Gulf Refining Co.'s No. 1 Belle Helene on the Darrow Dome, is shut down for mud at 248 feet. Triumph Oil Corp.'s No. 2 Lacey, southeast of the town of Sorrento, is in hard sand at 1,998 feet. Gulf Refining Co.'s No. 11 United Land Co., Sorrento, is drilling at 2,920 feet.

Cameron Parish — Shell Petroleum Corp.'s No. 6 Watkins, Black Bayou, is drilling blue shale at 3,295 feet. This company's No. 8 Watkins is drilling blue gumbo at 660 feet. The Texas Company's No. 3-A Calcasieu Lake, Calcasieu Lake Dome, is building derrick.

Iberia Parish—The Texas Company's No. 3-A Vermillion Bay, is drilling rock at 4,279 feet.

LOUISIANA-ARKANSAS

(Continued from Page 49)

200 feet on No. 4 Bryson, Section 8-17-16.

Mooringsport—Falcon Oil Co. has derrick up for No. 1-B Muslow, 1,725 feet south and 735 feet west NE cor., Section 29-20-15.

Oil City—Magnolia Petroleum Co.'s No. 18 Doan-Thigpen, Section 6-20-15, is drilling shale at 1,076 feet. Snake Creek Oil Co. is coring No. 1 Levee Board, Section 9-21-16, at 2,295 feet.

Pine Island—Bayou State Oil Corp. set 10-inch at 40 feet, 6-inch at 975 feet and is waiting on standard rig to pump No. 26 Jolly, Section 22-22-15, total depth 1,003 feet. Magnolia Petroleum Co., deepening No. 18 Dillon, Section 24-21-15, is drilling gummy shale at 3,961 feet. Completed in January it produced 15 bbls. of oil and 150 bbls. of salt water on gas lift from 3,790 feet.

Claiborne Parish

Haynesville—Smitherman & McDonald's No. 1 Miller, Section 17-23-8, is shut down at 4,755 feet.

LaSalle Parish

Little Creek—H. L. Hunt set 6-inch at 1,492 feet and has 1,200 feet of oil in the hole from 6 feet of sand, in No. 5 Urania, Section 2-9-1e, total depth 1,500 feet. Montague Oil Co. set 10-inch at 100 feet on No. 7 Zenoria, Section 11-9-1e, and is fishing for drill stem, total depth 400 feet.

Urania—Arkansas Natural Gas Corp.'s No. 10-B Urania, 227 feet east and 366 feet north, SW cor. SW NW, Section 17-10-2e, set 10-inch at 106 feet and is drilling at 1,300 feet. H. L. Hunt has rig up for No. 6 Urania in the NE SW, Section 2-9-1e. Randall and others' No. 4 Urania, Section 1-10-1e, tested dry at 500 feet and is shut down for orders.

Monroe District

Morehouse Parish—Interstate Gas Co. has derrick up for No. 1 Flemming in Section 15-20-4. Natural Gas Producing Co. of Louisiana cemented 6-inch at 2,118 feet on No. 23 Crossett, Section 26-21-4, and 8-inch at 867 feet on No. 14 Tensas, Section 4-22-4. Southern Carbon Co.'s No. 2 Miles, Section 1-20-4, set 185 feet of 12½-inch and is drilling at 350 feet.

Ouachita Parish—LaDel Oil Properties' No. 46 fee, Section 6-19-5, is drilling at 1,800 feet. Magnolia Petroleum Co. made location for No. 1 fee, 660 feet south and 560 feet west, NE cor. NE NW, Section 14-18-4; No. 1 U. S., Section 18-19-5, had a show of gas at 2,140 feet and is waiting orders; No. 3 U. S. is a location 660 feet north and east, SW cor. NW, Section 18-19-5. Maury Drilling Co. has rig up for No. 5 McEwen in Section 29-17-4. Ouachita Natural Gas Co. set 280 feet of 12-inch casing on No. 1 Sandidge Patton, Section 15-20-4. Palmer Corp.'s No. 6 fee, Section 24-19-4, set 12-inch at 146 feet and is drilling at 400 feet. Peerless Carbon Co. set 8-inch at 826 feet on No. 4 Moore, Section 26-20-4. Pipes & Mack are fishing for parted casing in No. 1 McGee, Section 10-18-4, total depth 2,167 feet. Southern Carbon Co.'s No. 11 Fairbanks, Section 33-20-4, cemented 6-inch at 2,090 feet. United Carbon Co.'s No. 1 Spade, Section 32-19-4, cemented 6-inch at 2,135 feet.

Union Parish—United Carbon Co. cemented 6-inch at 2,084 feet on No. 1 Reed, Section 12-20-3.

Richland Parish

Carbon Gas Co.'s No. 1 W. T. Sartor, Section 16-16-6, is fishing for drill stem, total depth 2,361 feet. Magnolia Petroleum Co. has rig up for No. 1 Noble, Section 36-16-5; No. 1 Sartor Co. is a location 660 feet south and west of NE cor. NW NE, Section 5-15-6. Northern Louisiana Natural Gas Co. set 12-inch at 205 feet and 8-inch at 872 feet on No. 1 Hemler, Section 22-16-6.

Webster Parish

Cotton Valley—Louisiana Oil Refining Corp. has rig up to drill No. 6 Gray, 660 feet south and west, NE cor. NW, Section 28-21-10. Magnolia Petroleum Co.'s No. 4 Ira Cox, Section 23-21-10, is in lime at 4,102 feet; No. 6 Marshall, Section 21-21-10, is drilling hard lime at 3,065 feet and No. 1 McCook & Hibbler, Section 22-21-10, cored lime at 4,629 feet.

Sarepta and Shongaloo—J. W. Clark is bailing to test 4 feet of sand in No. 2 Mayfield, Section 20-23-9, total depth 2,760 feet. Magnolia Petroleum Co.'s No. 1 Cook, Section 2-22-11, is coring at 2,688 feet; No. 1 Denman, Section 1-22-11, is waiting for casing to test 9 feet of sand, total depth 2,719 feet. Nemours Corp. cemented 6-inch at 2,610 feet on No. 1 Munn, Section 1-22-10.

Iberville Parish — Shell Petroleum Corp.'s No. 3 Wilbert, White Castle, is washing to the bottom at 3,847 feet where it has been standing. Standard Oil Co.'s No. 1 Schwing, Bayou Blue, is waiting on cement to set to test sand at 3,633-48 feet. The 8¼-inch casing was cemented at 3,336 feet. No. 2 Schwing is building derrick and on the same dome, Standard's No. 2 Wilbert is rigging up.

Jefferson Davis Parish—Vacuum Oil Co.'s No. 1 DeVilbiss, Roanoke Dome, is drilling water sand in sidetracked hole at 4,765 feet. This company's No. 1 Earle, 3,680 feet west of No. 1 DeVilbiss, is drilling sandy shale at 3,306 feet.

Miscellaneous Parishes—Wildcats in other parishes are unchanged with practically the only other work being at new domes prospects in Plaquemine and Terrebonne Parishes where The Texas Company is moving in material and making preparations to build derricks for seven tests on as many prospects. Gulf Refining Co. is rigging up for No. 1 Morris & Rose at Spanish Pass, Plaquemine Parish.

ARKANSAS

Johnson County

Arkansas Natural Gas Corp.'s No. 2 Bynum, Section 12-10-24, is drilling at 2,195 feet; No. 1 McPherson, Section 10-10-24, is drilling at 2,465 feet.

Crawford County

Alma District—Industrial Oil & Gas Co. has location for No. 2 Brownlee, 500 feet south and 660 feet east, NW cor. NW NW, Section 29-9-31.

Ouachita County

Smackover—Gulf Refining Co. set a short string of 4½-inch at 2,565 feet to test 2 feet of sand in No. 8 Goodwin, Section 32-15-15. Simms Oil Co.'s No. 11 Hildebrandt, Section 33-15-15, is fishing for drill stem, total depth 3,140 feet.

Union County

El Dorado—Standard Oil Co. is arranging to bail No. 5 Burns, Section 31-17-15, total depth 2,207 feet.

Champagnolle—Lion Oil Refining Co. set 140 feet of 10-inch on No. 2 Kelly, Section 9-17-14. Magna Producing Co. cemented the bottom of No. 2 El Dorado Realty Co. in Section 8-17-13, previously abandoned at 3,238 feet, and is arranging to whipstock. Ohio Oil Co.'s No. 1 Adams, Section 7-17-13, was dry at 3,080-85 feet and is coring; No. 1 Raulston, Section 12-17-14, cemented 6⅝-inch at 3,007 feet to test 4 feet of sand, total depth 3,037 feet. Oilwell Corp.'s No. 1-D Perdue, Section 9-17,14, set 10-inch at 114 feet, stuck the drill stem at 700 feet and is skidding derrick to start second hole. Rovenger Oil Corp. tested salt water at 2,850-55 feet in No. 2-B Perdue, Section 9-17-14, and is arranging to test at 3,190-3,215 feet. Skelly Oil Co.'s No. 2 Kelly, Section 9-17-14, set 62 feet of 10-inch and is drilling at 1,390 feet.

Smackover—Sam Richardson's No. 7 Lawton, Section 10-16-15, set 10-inch at 72 feet and is drilling at 1,580 feet. Shell Petroleum Co. is rigging up to deepen No. 1 Bilyew, completed June 12, 1925, flowing 6,000 bbls. oil, total depth 2,419 feet.

EAST TEXAS

Harrison County

Nick Barbare set 108 feet of 10-inch and is drilling at 1,460 feet on No. 1-A Bahan-Furrh in the James Short Survey and has location for No. 1 Fuller-Furrh in the same headright.

Panola County

Calatex Oil & Gas Co. tested a small show of gas at 2,009 feet in No. 4 W. C. Agurs, J. Womack Survey, and is arranging to go deeper. Nemours Corp. is whipstocking 6-inch casing on No. 1 Johns (formerly S. E. Davidson and others) in the W. H. Wooley Survey, at 1,950 feet, total depth 2,009 feet. Eureka Natural Gas Co.'s No. 3 Gully, James Matthews Survey, is drilling at 1,068 feet and No. 4 is a derrick. Magnolia Petroleum Co.'s No. 3 Ella Baker, B. C. Jordan Survey, is drilling at 2,080 feet in gumbo; No. 15 Steele, B. C. Jordan Survey, is in lime at 2,430 feet. The Texas Company's No. 10-B Adams, Isom Hatcher Survey, is waiting on 6-inch plug to set at 974 feet.

SOUTHWEST TEXAS

(Continued from Page 46)

south of Refugio, is at 2,400 feet setting up to deepen test which made salt water at that depth.

Houston Gulf Gas Co.'s No. 1 Rooke, at 1,800 feet, blew out with considerable gas, no damage.

Houston Gulf Gas Co.'s No. 8 James Agnes Lambert is location.

Houston Oil Co.'s No. 10 Rooke at 3,500 feet producing gas well is being deepened to 3,700 foot sand.

Webb County

Laredo Oil Co.'s No. 145 Killam, Survey 457, has derrick up.

Usher Carson's No. 2 D. Benavides, Survey 1613, Block 11, located 150 feet north and west lines, has been spudded in.

Zapata County

O. W. Killam's No. 3 Hinnant, Survey 74, located 1,908 feet west line, 1,470 feet south line, has been spudded in.

Humble Field—Duval

Humble Oil & Refining Co.'s No. 14 Kohler, Survey 396, located 495 feet north line and east line, is drilling at 500 feet, 12-inch casing set at 334 feet; No. 15 Kohler, Survey 401, located 825 feet east line, 155 feet north line, is rigging up; No. 16 Kohler, Survey 144, located 165 feet south and west line, is location; No. 17 Kohler, Survey 399, located 165 feet north and west line, is rigging up; No. 18 Kohler, Survey 402, located 165 feet south and east line, is location; No. 19 Kohler, Survey 424, located 165 feet north and west line, is ready to spud in; No. 20 Kohler, Survey 251, located 165 feet north line, 2,475 feet east line, is location.

Driscoll Field

Robert Driscoll's No. 15 Driscoll, Survey 448, has derrick up, location to be announced later.

Schoolfield—O'Byrne Pool

Magnolia Petroleum Co.'s No. 5-B Hahl, Survey 61, located 3,681 feet east line, 150 feet south line, is drilling at 1,850 feet. S. & O. Oil Co.'s No. 2 Bowa, Survey 250, Block 21, located 220 feet east line, 660 feet south line, has sand at 2,367 feet and is coring deeper; No. 2 Hahl, Survey 250, Block 22, is location 220 feet north line, 960 feet west line; No. 3 Hahl, Survey 250, Block 22, is location 220 feet north line, 660 feet west line. Oynx Oil Co.'s No. 4 Krauter, Survey 250, Block 20, located 220 feet south and west lines, has sand at 2,363 feet with 300 feet of oil in the hole and is coring deeper.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 41 Merchants State Bank, Survey 155, located 150 feet north and east lines, is coring sand at 3,812 feet. Randado Oil Corp.'s No. 35 Palacious, Survey 291, Block 2, is location 150 feet south line, 450 feet to east line.

Henne-Winch & Fariss Field

A. L. Kitselman's No. 1 Lopez, Survey 255, Block 6, located 289 feet north line, 300 feet west line, is drilling at 1,620 feet; No. 1 Holbien, Survey 3, Share 3, Block 9, located 450 feet north line, 150 feet west line, has spudded in. The Texas Company's No. 1 D. Vela, Survey 582, Share 4, located 1,300 feet west line, 150 feet south line, has spudded in.

Schott Field—Webb

Livingston & Payne's No. 1 Guerra-Ochoa, Survey 58, located 917 feet east line, 497 feet south line, is moving on.

Albercas Field

Sun Oil Co.'s No. 12-A Yeager-Strohman, Share 5, located 4,675 feet north

line, 150 feet west line, has sand at 2,153-55 feet and is standing. Rycade Oil Corp.'s No. 8 Yeager-Strohman, Share 5, located 1,950 feet north line, 150 feet east line, is standing at 2,145 feet.

Aviator or Bruni Tracts

Aviator Gas Co.'s No. 2 Bruni, Survey 2,083, is location 1,120 feet east line, 1,170 feet south line.

Carolina-Texas Field

C. R. Miller's (Miller-Daniels) No. 1 de la Garza, Survey 48, Block 47, located 150 feet north and east lines, is drilling at 2,620 feet. W. R. Shankle's No. 1 Webster, NE SE, Survey 684, located 150 feet south and west lines, has sand at 3,038-45 feet and set casing at 3,038 feet. The Texas Company's No. 1 Benavides, NW SE, Survey 684, located 150 feet north and west lines, is drilling at 2,500 feet.

Magnolia-Cole Field

Cole Petroleum Co.'s No. 67 Benavides, Survey 412, Block 12, located 313 feet east line, 160 feet north line, is standing at 38 feet. Houston Oil Co.'s No. 4-D Benavides, Survey 753, Block 13, is location 160 feet south line, 822.5 feet east line; No. 17-D Benavides, Survey 753, Block 5, is location 160 feet south and west lines. Magnolia Petroleum Co.'s No. 1 Benavides, Survey 697, Block 10, located 150 feet north and east lines, is moving on; No. 1 King-Benavides, Survey 694, Block 12, is location 150 feet south and east lines; No. 1 J. G. Valdez, Survey 754, Block 15, located 150 feet south and east lines.

Cole Gas Field

O. W. Killam's No. 4 (1) Bruni, Survey 5, Block 2, located 150 feet northwest lines and northeast lines, is ready to spud in; No. 6 Bruni, Survey 3, has sand at 1,460-65 feet showing oil and is drilling at 2,300 feet. J. G. Mackay's No. 1 Richardson, Survey 5, located 150 feet north and west lines, set casing at 1,768 feet after testing large gas well at 1,770-75 feet. W. F. Morgan's No. 1 King-Harper, Survey 323, located 2,255 feet southeast lines and 2,810 feet east of east line of Survey 319, is rigging up.

Jennings Field—Zapata

O. W. Killam's No. 12 Cuellar, Cerrito Blanco grant, is location. Killam-Duggan's No. 4, Cerrito Blanco grant, 1,511 feet northeast lines, 627 feet northwest lines, plugged back to 1,473 feet from 2,087 feet and is waiting on cement. South Texas Production Co.'s No. 4 Jennings, Cerrito Blanco grant, 6,900 feet southeast lines, 8,300 feet southwest lines, is drilling at 960 feet.

Somerset Field Atascosa

W. R. Hamilton's No. 15 R. T. Hughes, J. Sharp Survey No. 518, is location 300 feet east of No. 14, skidding derrick.

Yoast Field—Bastrop

Atlantic Oil Production Co.'s No. 4 Yoast, A. Garcia Survey, is location. Judges Batts' No. 1 White is drilling at 2,100 feet. Gulf Production Co.'s No. 2 Yoast, A. Garcia Survey, 300 feet east of No. 1, has set casing at 1,436 feet; No. 1 Yoast, A. Garcia Survey, 1,593 feet northwest lines, 150 feet northeast lines, at 1,510 feet, is in Serpentine showing oil.

Somerset Field—Bexar

Schimmel Production Corp.'s No. 1 J. Frees, C.E.P.I.&M. Survey, Block 2, is location 250 feet east line, 829 feet south line; No. 2 J. Frees, same survey and block, is location 679 feet north of No. 1.

Dobrowolski Field

F. H. Eckert's No. 3 Dobrowolski, Section 52, Block 4, located 300 feet south of No. 1, is drilling in rock at 300 feet.

Gas Ridge Field

Medio Oil Co.'s No. 9 Cohen, 500 feet southeast of No. 7, is shut down at 470 feet.

Bruner Field—Caldwell

Tips de Armond's No. 2 Carter, Gerren Hinds Survey, 170 feet west line, 147 feet north line, drilling at 1,005 feet, showing some gas. Buchanan and others' No. 1 Trap Briscoe, P. B. McCearley Survey, 150 feet south and east lines, at 24 feet is waiting on rotary.

E. R. Brawn-C. O. Miller's No. 2 R. W. Carter, Gerren Hinds Survey, 150 feet north line and west line, has derrick up. J. J. Capps' No. 1 G. W. New, James Hinds Survey, at 2,745 feet is standing 1,800 feet of oil, going on pump. C. E. Ellzey's No. 1 Taylor is shut down at 42 feet. Forest Oil Co.'s No. 1 J. H. Fleming, A. Floyd Survey, 150 feet northeast lines, 75 feet southeast lines, at 1,300 feet is showing some gas.

Golden West Oil Co.'s No. 3 Malone, A. Floyd Survey, 450 feet northwest and northeast lines at 1,118 feet is deepening to Edwards; No. 1-B Wilson, A. Floyd Survey, 150 feet north and east lines at 1,218 feet is drilling deeper.

Gulf Production Co.'s No. 3 W. O. Allen, Gerren Hinds Survey, drilling at 2,551 feet; No. 4 W. O. Allen, 300 feet east of No. 3, is rigging up; No. 2 Carter, Gerren Hinds Survey, 450 feet east line, 150 feet north line, is drilling at 2,473 feet in Buda, with no chalk; No. 3 R. W. Carter, Gerren Hinds Survey, 150 feet south and west lines, is in Georgetown at 2,576 feet with no chalk; No. 5 R. W. Carter, 300 feet south of No. 1, is moving in rig; No. 4 J. J. Davis, A. Floyd Survey, 150 feet east line, is in chalk at 2,438 feet.

No. 1 M. J. Tiller, Gerren Hinds Survey, 150 feet northeast corner, is in Edwards at 2,727 feet setting casing; No. 3 M. J. Tiller, Gerren Hinds Survey, 300 feet west of No. 1, is in Del Rio at 2,608 feet; No. 4 M. J. Tiller, Gerren Hinds Survey, 150 feet south line, 275 feet west line, at 2,705 feet is waiting on cement; No. 6 M. J. Tiller, 300 feet east of No. 5, is drilling at 1,820 feet in shale; No. 7 M. J. Tiller, 300 feet east of No. 6, is rigging up.

No. 1 J. D. Wright, Gerren Hinds Survey, 450 feet south line, 150 feet west line, is at 2,536 feet in Del Rio; No. 2 J. D. Wright, 300 feet north of No. 1, is in Taylor marl at 2,177 feet; No. 3 J. D. Wright, 150 feet south and west lines, is drilling at 281 feet; No. 4 J. D. Wright, 300 feet north of No. 2, is rigging up; No. 5 J. D. Wright, 150 feet north and east lines, is rigging up.

T. C. Hadley's No. 1 Merriweather, is drilling at 900 feet. Humble Oil & Refining Co.'s No. 4 W. O. Allen, Gerren Hinds Survey, 300 feet east of No. 2, at 2,733 feet is standing 1,400 feet in oil; No. 5 W. O. Allen, Gerren Hinds Survey, 431 feet north line, 760 feet west line, at 2,752 feet has fluid in hole; No. 6 W. O. Allen, Gerren Hinds Survey, 150 feet north line, 868 feet south line, at 2,752 feet is swabbing with 2,000 feet of oil in hole; No. 7 W. O. Allen is rigging up.

No. 8 W. O. Allen is drilling at 317 feet; No. 4-A Moses & Baggett, 300 feet west of No. 1, has derrick up; No. 5-A Moses & Baggett, Gerren Hinds Survey, 804 feet south line, 150 feet east line at 2,495 feet, is drilling in Buda; No. 6-A Moses & Baggett, Gerren Hinds Survey, 150 feet east line, 1,158 feet south line, is location; No. 7-A Moses & Baggett is rigging up; No. 1 Floy Gray, James Hinds Survey, 350 feet south line and west line, at 2,612 feet is drilling.

No. 1-B Moses & Baggett, Samuel Shupe Survey, 150 feet south line, 695 feet east line, is in Edwards at 2,672 feet; No. 2-B Moses & Baggett, Samuel Shupe Survey, 300 feet east of No. 1, has spudded in; No. 3-B Moses & Baggett, Samuel Shupe Survey, 150 feet east line, 1,050 feet south line, has derrick up; No. 6 J. B. Tiller, Gerren Hinds Survey, 150 feet north line, 750 feet west line, is bailing at 2,752 feet.

No. 7 J. B. Tiller, Gerren Hinds Survey, 450 feet west line, 150 feet south line, is drilling at 2,560 feet; No. 1-A J. R. Miller, James Hinds Survey, 150 feet west line, 1,050 feet south line, has derrick up; No. 1-B J. R. Miller has derrick up; No. 1 Wright has derrick up; No. 4 J. J. Davis, A. Floyd Survey, 300 feet north of No. 3, at 2,700 feet is showing oil but fails to flow.

C. E. Lange's No. 1 Kate Colding, A. Floyd Survey, 150 feet northwest lines, 113 feet northeast lines, at 2,716 feet is waiting on pump. Rydal Oil Corp.'s No. 1 J. M. Hanson, James Hinds Survey, 150 feet south and east lines, is rigging up. Shell Petroleum Corp.'s No. 1-B Carter, Gerren Hinds Survey, 150 feet south and west lines, is drilling at 1,483 feet; No. 5 Malone, A. Floyd Survey, 300 feet east of No. 1, is in shale at 1,375 feet.

No. 3 Moses, A. Floyd Survey, 150 feet south line, 450 feet east line, is at 2,706 feet, rigging up to pump; No. 1 W. L. Smith is drilling at 60 feet; No. 3 Smith at 2,695 feet is standing; No. 2 F. Tiller, Gerren Hinds Survey, 450 feet east line, 150 feet north line, at 55 feet is moving in rotary; No. 6 Floy Tiller, Gerren Hinds Survey, 150 feet south line, 1,050 feet west line, is in Edwards at 2,688 feet.

No. 7 Floy Tiller, 300 feet west of No. 5, is drilling at 1,700 feet; Sun Oil Co.'s No. 5 Malone, A. Floyd Survey, 150 feet southwest lines, 1,486 feet northwest lines, is in Edwards at 2,719 feet going on the pump. The Texas Company's No. 1 Carter, Gerren Hinds Survey, 150 feet south and east lines, is drilling at 1,703 feet.

No. 5 Merriweather, A. Floyd Survey, 150 feet northeast and southeast lines, is drilling at 488 feet; No. 6 Merriweather, A. Floyd Survey, 150 feet northwest lines, 70 feet northeast lines, at 2,783 feet is standing in oil to 500 feet from top. Towns & Porter's No. 5 Hickman, Gerren Hinds Survey, 300 feet east of No. 4, is drilling at 375 feet. Turman & Brown's No. 1 Beversdorff, A. Floyd Survey, is location 150 feet southeast lines, 1,313 feet southwest lines.

Luling Field

United North & South Development Co.'s No. 1 G. C. Gideon, Miles Dykes Survey, 880 feet north line, 320 feet west line, is drilling at 300 feet.

Sullivan Field—Gonzales

Cranfill & Reynolds' No. 1 J. E. Webb, Winslow Turner Survey, 150 feet north and east lines, at 4,265 feet is dry and being abandoned. Empire Gas & Fuel Co.'s No. 1 Riverbed, Winslow Turner Survey, 133 feet north line, 10 feet east line, is drilling at 3,550 feet, running 35 feet high. Indian Petroleum Co.'s No. 1 Karnstadt, Lot 5, located 450 feet northwest lines, 150 feet northeast lines, is drilling at 4,000 feet. The Texas Company's No. 1 J. E. Lamkin, Winslow Turner Survey, is location 800 feet northwest lines, 200 feet southwest lines.

Luling Field—Guadalupe

A. B. A. Oil Co.'s No. 4 Britton Harris is shut down at 1,250 feet for boiler repairs. Magnolia Petroleum Co.'s No. 9 W. R. Shanklin, Harriett Cottle Survey, is drilling at 1,385 feet.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 4 Flato, Section 40, Lot 10, located 450 feet north line, 250 feet east line, is drilling at 4,934 feet, previously reported abandoned dry at 4,810 feet.

Agua Dulce Field—Neuces

Agua Dulce Oil & Gas Co.'s No. 1 Otto Wolters, Section 34, Benton's pasture, is drilling at 1,150 feet. R. & G. Corp.'s No. 1 Brown, Section 87, George H. Paul Subdivision, is location; No. 2 Ed Allen, Lot 5, Section 6, about 1,900 feet east of No. 1, has derrick up; No. 1 Emily Wright Perkins, W. W. Wright Survey, 150 feet west line, 1,920 feet south line, is drilling at 1,150 feet.

Saxet Field

Saxet Gas Co.'s No. 5 Dunn is location 1,500 feet southwest of No. 1 Dunn, discovery well of field.

Refugio Field—Refugio

Benedum & Trees' No. 4 Claude Heard, 600 feet south of No. 3, is location. Houston Oil Co.'s No. 5 Wilson Heard, 300 feet west of No. 4, is drilling at 2,024 feet; No. 1 Blanco River is location. Houston Gulf Gas Co.'s No. 4 J. M. O'Brien, at 2,420 feet, is cleaning out hole to deepen; No. 1 Fox is drilling at 3,900 feet; No. 3 Fox, Lot 4, Block 5, at 3,300 feet set casing past blowout to drill deeper. Mission Drilling Co.'s No. 3 Rogers estate is drilling at 510 feet.

Saxet Gas Co.'s No. 6 Claude Heard, 600 feet south of No. 4, is drilling at 1,000 feet. Union Exploration Co.'s No. 1 Holmes Heard, Tract 3, Block 8, located 150 feet south and east lines, is shut down at 3,782 feet. Union Exploration Co.-William F. Morgan's No. 2 Leslie Adkins, Block 8, located 150 feet south and east lines, in sand at 3,720-90 feet, is washing out.

White Point Field—San Patricio

Spencer & Rhodes' No. 2 J. M. Bennett, A. S. Taft Survey, 900 feet west line, 400 feet south line, tested dry at 2,290 feet and is drilling deeper.

SOUTHWEST WILDCATS

(Continued from Page 46)

a few hundred feet south, is a sulphur water well in the Edwards lime at 4,365 feet. The Indian Petroleum Co.'s No. 1 Karnstadt also looks dry but the Empire Gas & Fuel Co.'s No. 1 Riverbed now down 3,550 feet, seems to be running high and stands a good chance of making a producer. It is about 1 mile southwest of the No. 1 Norwood while the No. 1 Webb is about 600 feet southeast from it.

Wildcat interests will increase down across Nothern Bee and Northern Live Oak County with the closing of a deal whereby the Houston Gulf Gas Co. people secured a 6 months' option on the Hewitt No. 1 Ray and 12,000 acres of leases near Pettus in Northern Bee County. They are to drill two different tests at once. The No. 1 Pettus is about a 25,000,000-foot gas well at a little less than 3,000 feet. Natt Holmann is down nearly 800 feet on his test on the Shiner ranch over in McMullen County and southwest of the Pettus proposition. The Pettus well is 50 miles from any production of importance.

Duval County

National Oil Co.'s No. 2 Ball is having magnetometer, used to check location on subdivision of Ball ranch. O. Henry Oil Co.'s No. 1 Henry, Block 1,879, located 450 feet southeast lines, 220 feet northeast lines, is drilling at 1,900 feet. W. F. Morgan's No. 1 Welder-Woods, Survey 102, located 2,725 feet east line, 75 feet south line, is drilling at 1,625 feet.

Starr County

U. S. Oil & Gas Co.'s No. 1 Kelsey, Porcion 76, Block 11, located 1,500 feet north line, 500 feet west line, is ready to spud in. Crays & McCardle's No. 1 Hicks & Hicks, Perdernal grant, 150 feet northeast lines, 200 feet southeast lines, is drilling at 400 feet. The Texas Company's No. 1 V. C. de Guerra, Porcion 68, Share 92, located 600 feet east line, 6,280 feet south line, is rigging up.

Webb County

G. S. Lumpkin's No. 1 H. Yeager, Porcion 33-34-35, Block 17, is location 1,170 feet east line, 150 feet south line. L. W. Nelson's No. 1 Moglia, Survey 672, located 150 feet east line, 2,584 feet south line, is moving on.

Zapata County

National Oil Co.'s No. 1 Don B. Adams, Section 11, Block 4, is rigging up. John Pappas' No. 1 Cuellar, Porcion 33-34, Block 5, located 333 feet northeast lines, 194 feet southeast lines, is drilling at 365 feet.

Atascosa County

Amphion Oil Co.'s No. 1 Sam Schlisser, Farm B of Arnold Farms, 300 feet northeast lines, 600 feet southeast lines, is drilling at 125 feet.

Bastrop County

Gypsy Producing Co.'s No. 1 Lottman, 7 miles east of Bastrop, is shut down 2,320 feet. Billy Mayfield's (Krebs-Leach) No. 2 McColl, Stephen F. Austin Survey, is resuming drilling at 1,080 feet, test taken over by E. O. Ogden of Houston.

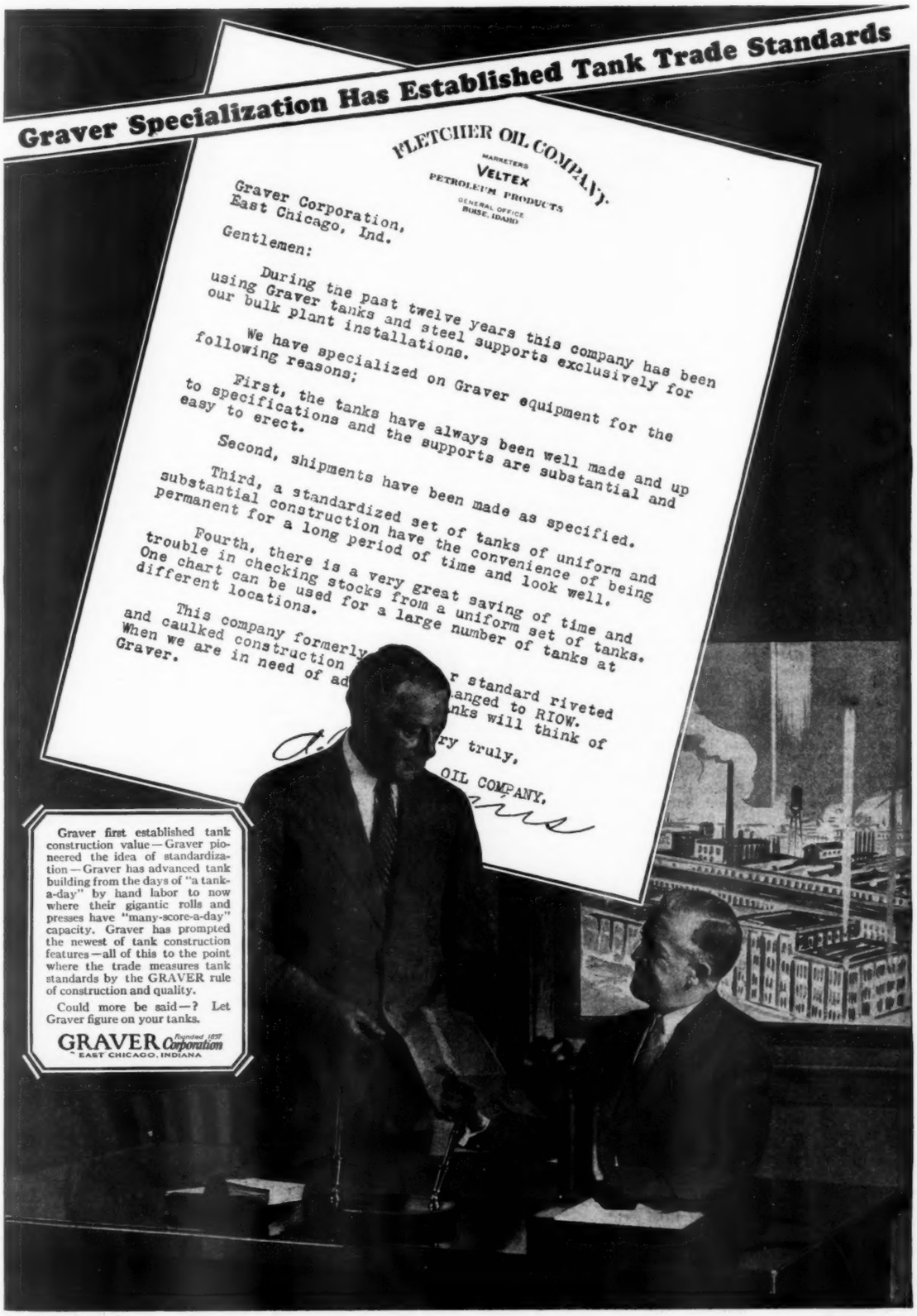
Bexar County

Allen Burnam's No. 1 Ward, southwest of Martinez, is drilling at 1,600 feet. Dixie Oil Co.'s No. 1 Medina Irrigation Co., William Miller Survey No. 180, located 1,666 feet north line, 470 feet west line, is shut down. Humble Oil & Refining Co.'s No. 2 Oppenheimer, J. M. Urriegas Survey, 300 feet north of No. 1, is drilling at 3,268 feet. Indian Creek Oil & Gas Co.'s No. 1 Wolfsohl, J. A. Navarro Survey No. 5, has resumed drilling at 540 feet. Moore-Jauer's No. 1 Holly R. Ellison, T. York Survey, 2,916 feet east line, 1,500 feet south line, has set and cemented casing at 383 feet. B. L. Raborn's No. 1 Engelmann, John James Survey No. 73, located 300 feet south line, 600 feet east line, is standing at 1,715 feet.

Fayette County

Marshall & Moore's No. 1 John A. Kerr, M. Muldoon league, about 250 varas north line and little west of center, is shut down at 2,078 feet. National Oil Co.'s No. 1 J. C. Melcher, S. M. Williams league No. 1, located 300 feet north and east lines, is drilling at 1,860 feet. R. E.

XUM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EAST CHICAGO, INDIANA

Phalon's No. 1 Cervenka, Fayette County school lands, is drilling at 3,700 feet in series rock, limerock and gumbo.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, 920 feet north line, 560 feet east line, is shut down at 214 feet. Robert Rodson's No. 1 Glasscock, Survey 50, located 150 feet CEL, is standing at 962 feet with oil in hole.

Caldwell County

Dextex Oil Co. (M. O. Rayor) No. 1 D. C. Robinett, M. G. Duke Survey, 150 feet center southwest lines, has spudded in. Whittington and others' No. 1 J. G. Horner, Francis Berry Survey, is shut down at 808 feet repairing boilers.

Calhoun County

B. F. Thompson's No. 1 Thomas, John P. Tullys Survey, 910 varas north, 5 feet 30 inches west of north corner of John C. Post Survey, is shut down at 2,390 feet.

Colorado County

National Oil Co.'s No. 1 H. T. Brandt, Freeman Petfus league, is location 150 feet south line, 1,000 feet west of highway. Shell Petroleum Co.'s No. 1 Neuendorff, J. Brod Survey, 500 feet east line, 200 feet south line, is rigging up.

Edwards County

A. M. Griffith's No. 1 Wardlaw, Section 60, Block V8, located 1,050 feet west line, 150 feet south line, set 15½-inch casing at 400 feet and resumed drilling.

Frio County

Austin Johnson and others' No. 1 Eschenburg, E. Gallagher Survey No. 788, is location 1,250 feet east line, 1,625 feet south line. Pilgrim Oil Co.'s No. 2 Blackaller, James Gouley Survey, is shut down at 3,218 feet.

Goliad County

J. E. Alexander's No. 1 Frommie, 10 miles north of Goliad, is drilling at 692 feet. Booth McCarson's No. 1 Murry, Survey 3, Block 11, is location 200 feet west line, 150 feet south line.

Gonzales County

Alexander & Smith's No. 1 Billings, G. Gwinn Survey, northwest corner, has derrick up and part of rig on ground. Joe Bruner's No. 1 Miller, Richard Heath Survey, 3,040 feet north line, 200 feet east line, is drilling at 400 feet. Crown Oil Corp.'s No. 1 Mrs. Hattenback, Jones Survey, is making location. Dunning & Pierce's No. 1 Mattie Keepers, R. Ward Survey, is standing at 203 feet. W. D. Flynn's No. 1 Wilhausen, S. Bateman Survey, is drilling at 5,212 feet. W. G. Malone's No. 1 Staton, J. M. Salinas Survey, 375 feet southwest lines, 1,275 feet northwest lines, is shut down 400 feet. L. P. Unkel's No. 1 Lumm & Bouldin, R. Ward Survey, Block 10, is shut down at 380 feet.

Guadalupe County

Pat Armstrong's No. 1 Halm, Wakefield Survey, is straightening out titles. G. A. Green's No. 1 B. B. Dix, Ira Nash Survey, 610 feet north of road, 320 feet east line, is standing at 665 feet. J. J. Christie's No. 1 Taylor Thomas, Gustavus Chotwell Survey, 1,100 feet southwest lines, 1,130 feet southeast lines, is drilling at 1,221 feet in base of Georgetown. Miller Brothers' No. 1 Gib Springs, E. Cortari Survey, 450 feet west line, 775 feet south line, is drilling at 2,163 feet. Eugene Sight's No. 1 C. Woehler, John King Survey, 310 feet north line, 210 feet east line, is shut down at 1,935 feet. Trinity Drillers' No. 1 Baptist Landmark Association, J. H. Kuykendall Survey, 150 feet south line, 155 feet west line, is drilling at 1,300 feet.

Jackson County

The Texas Company's No. 1 W. C. Moore, I.&G.N. Survey No. 208, located 5,108 feet to south line, 150 feet to west line, is drilling at 3,229 feet. Wright Brothers' No. 2 Classen is drilling at 3,945 feet; No. 8 Drushell has derrick up.

Karnes County

W. E. Hewitt's No. 1 W. E. Porter, 6 miles south of Runge, is drilling.

Kerr County

McMan Oil & Gas Co.'s No. 2 Walter Schreiner is location.

Kinney County

Lloyd Oil Co.'s No. 1 G. Bedell Moore estate, Survey 117, is location 1,320 feet to CNL. Mardon Oil Co.'s No. 1 Jim Clamp, Survey 346, Section 1,492, at 2,540 feet. Edwards topped at 2,493 feet, showed some gas, set casing too low and are pulling it to reset.

Lavaca County

The Texas Company's No. 1 Russek, H. Martin Survey, 150 feet south of west line, is drilling at 3,085 feet in sandy shale.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 2 Indio Ranch is at 1,320 feet. Rycade Oil Corp.'s No. 4 J. M. Chittim, Section 104, Block 7, east central part, is rigging up; No. 3 Chittim, Section 116, Block 7, 10 feet to west line, 255 feet to south line, at 3,007 feet blew in oil well, estimated 2,000 bbls. daily; No. 4 Sullivan, Section 112, Block 7, east central part, has derrick up.

Medina County

W. M. Allison's No. 1 Haeglin, Survey 579, located 300 feet to CNL, is shut down at 600 feet. California-Medina's No. 1 Rothe, Survey 1,012, has erected new 120-foot derrick and moved in big rotary rig at 3,278 feet. F. M. Cline's No. 1 Bendele, Survey 593, located 600 feet to west line, 150 feet to south line, is standing at 815 feet showing some oil. Donaldson Oil Development Corp.'s No. 1 Adams Co., Survey 25, located 160 feet to east line, 1,227 feet to south line, is at 2,840 feet with strong odor of oil. Lynch and others' No. 1 Mott is standing at 503 feet. Richardson's No. 2 Bendele, Survey 593, is standing at 937 feet. Thomas & Ryan's No. 1 Conger, Survey 459, located 200 feet to north and east lines, at 1,046 feet tested dry and is drilling deeper; bottom core in Anacacho showed considerable oil.

McMullen County

Natt Holman's No. 1 Shiner, Henry M. Brewer Survey, 7,515 feet south of Nueces River, 3,084 feet to east line, is drilling at 780 feet.

Nueces County

Southern Crude Oil Purchasing Co.'s No. 1 Roy Clift, Section 197, located 450 feet to south and east lines, has resumed drilling at 412 feet. Pearson and others' No. 1 Blunter, Block 3, NW cor., is drilling at 1,600 feet. R. & G. Corp.'s No. 1 Roberts is location north of Agua Dulce Field; No. 1 Ragland has set surface casing at 450 feet. Nueces River Basin Development Co.'s No. 1 Allen, G. Farrier Survey, 1,596 feet to south line, 474 feet to west line, has resumed drilling at 2,936 feet.

Refugio County

Blanco Creek Oil Co.'s No. 1 St. John, J. Scott Survey, 708 feet to northwest lines, 3,074 feet to northeast lines, is standing at 2,405 feet. Dunlap & Wilkinson's No. 1 Rooke, 10 miles south of gas field, is standing at 2,750 feet. J. M. Davis and Tom Horn's No. 1 Howard, Section 8, located 600 feet to north line, 2,640 feet to east line, is drilling at 2,735 feet. Magnolia Petroleum Co.'s No. 1 Glenewinkle, J. Scott Survey, 330 feet to south and east lines, is drilling at 3,670 feet.

San Patricio County

George B. Pickett's No. 1 Whitworth, NW NW Section 60, is standing at 3,250 feet.

Uvalde County

Pure Oil Co.'s No. 2 J. D. Smythe, Survey 687, located 1,920 feet south, 265 feet east of No. 1, is drilling at 1,781 feet.

Val Verde County

Producers Oil Co.'s No. 1 Everett, Section 40, Block DB, 2,400 feet to north line, 420 feet to west line, is shut down at 2,200 feet. Independent Operator's No. 1 Whitehead, SE SE, Section 30, Block 4, drilling at 4,785 feet, showed some oil at 4,765 feet.

OKLAHOMA FIELDS

(Continued from Page 44)

1,032 bbls. in Wilcox sand 4,225-42 feet.

Magnolia Petroleum Co.'s No. 4 Cherry, NE cor. SW NE, Section 26-7-4, flowed 1,948 bbls. from Wilcox sand 4,252-74 feet. Gypsy Oil Co. and others' No. 1 S. Guinn, NE cor. SE NW, Section 9-7-5, is dry and abandoned at 4,679 feet in Wilcox sand. Pure Oil Co.'s No. 1 Thrailkill, SW cor. NW, Section 19-7-5, drilled to 4,241 feet in Wilcox sand and plugged back to 4,173 feet where it swabbed 335 bbls. Shaffer Oil & Refining Co.'s No. 1 Tolon, NE cor. SE SW, Section 30-7-5, drilled to 4,273 feet and plugged back to 4,145 feet and swabbed 375 bbls.

Seminole County

Carter Oil Co. made location for No. 1 C. Stewart, NE cor. SE, Section 10-9-6. Carter Oil Co. made location for No. 1 Community, SW cor. NE, Section 11-9-6. Empire Oil & Refining Co. has the cellar dug for No. 7 Cluck, SE cor. NW SE, Section 11-8-5, Mission Pool. The cellar for No. 8 Cluck, NE cor. SW NE, Section 11-8-5, is also dug. Mid-Continent Petroleum Co. made location for No. 1 Ripley, NE cor. Section 13-8-5. Gypsy Oil Co. has dug the cellar for No. 4 Harjoche, SW cor. NE SE, Section 7-8-6. T. B. Slick is moving in tools at No. 2 Crain, SW cor. SE SE, Section 7-8-6. Indian Territory Illuminating Oil Co.'s No. 1 Peterson, SE cor. SW NW, Section 24-7-5. W. B. Pine has the cellar dug for No. 1 Bean, SW cor. NE SW, Section 13-7-6, Little River Pool.

The Texas Company & Independent Oil & Gas Co. are moving in the rig for No. 2 Hotulke, SE cor. Section 22-7-6. T. B. Slick is building the rig for No. 1-A Wood, NE cor. SW, Section 26-7-6. McCulloch Oil Co. made location for No. 1 Powell, NW cor., Section 11-6-5. T. B. Slick's No. 1 Reed, SW cor., Section 12-5-7, is rigging up to deepen from 2,629 feet.

Carter Oil Co. and others' No. 1 Strothers, SE cor. SW NW, Section 11-9-6, was completed for 1,300 bbls. in Wilcox sand 4,417-26 feet. Sinclair Oil & Gas Co. and others' No. 1 Judy, NE cor. NW SE, Section 1-8-5, Mission Pool, made 473 bbls. from Wilcox sand 4,402-04 feet. Independent Oil & Gas Co.'s No. 1 Lawson, NE cor. SE, Section 1-8-5, flowed 3,140 bbls. from Wilcox sand 4,279-83 feet. No. 4 Lawson, SE cor., Section 1-8-5, made 1,115 bbls. from Wilcox sand 4,470-74 feet.

Gypsy Oil Co.'s No. 3 Mosar, SE cor. SW NE, Section 1-8-5, came in for 485 bbls. in Wilcox sand 4,541-44 feet. Darby Petroleum Co.'s No. 1 Judy, NE cor. SW SE, Section 1-8-5, made 590 bbls. from Wilcox sand 4,338-48 feet. Empire Oil & Refining Co.'s No. 1 Cluck, SW cor. NE, Section 11-8-5, produced 1,726 bbls. from Wilcox sand 4,173-82 feet. Tidal Oil Co.'s No. 1 Nellie, NE cor. SE, Section 12-8-5, made 870 bbls. from Wilcox sand 4,383-96 feet. No. 2 Nellie, NE cor. SE SE, Section 12-8-5, made 1,920 bbls. from Wilcox sand 4,354-64 feet.

Magnolia Petroleum Co.'s No. 1 Killing, SE cor. NW NW, Section 14-8-5, was completed for 22 bbls. at 4,196 feet after it was plugged back from 4,464 feet in Wilcox sand. Amerada Petroleum Corp.'s No. 1 Rice, SW cor. SE SE, Section 5-8-6, made 1,095 bbls. from Wilcox sand 4,302-11 feet. Gypsy Oil Co.'s No. 2 N. Barkus, SW cor. SE SW, Section 6-8-6, made 602 bbls. from Wilcox sand 4,739-44 feet. No. 3 N. Barkus, SE cor. SW SW, Section 6-8-6, flowed 1,827 bbls. from Wilcox sand 4,450-55 feet. No. 6 N. Barkus, CSL N half SW, Section 6-8-6, made 2,060 bbls. from Wilcox sand 4,638-42 feet.

No. 5 Mission, SE cor., Section 6-8-6, was completed for 362 bbls. in Wilcox sand 4,477-80 feet. The Prairie Oil & Gas Co.'s No. 2 Micco, SW cor. SW SE, Section 5-8-6, drilled to 4,495 feet in Wilcox sand and plugged back to 4,487 feet and completed for 50 bbls. from Simpson sand. No. 2 Melton, NW cor. SW NW, Section 6-8-6, made 1,150 bbls. from Wilcox sand 4,233-38 feet. No. 1 Townsend, C S half NE SW, Section 6-8-6, was completed for 1,855 bbls. in Wilcox sand 4,253-58 feet. No. 1 Owens, NW cor. NE, Section 18-8-6, produced 510 bbls. from Wilcox sand 4,290-98 feet. W. B. Pine's No. 1 Harjo, SW cor. SE, Section 6-8-6, made 993 bbls. from Wilcox sand 4,421-23 feet.

Twin State Oil Co.'s No. 1 Judy, SE cor. NW SE, Section 6-8-6, made 1,567 bbls. from Wilcox sand 4,188-92 feet. No. 2 Judy, CSL N half S half, Section 6-8-6, was completed for 2,160 bbls. in Wilcox sand 4,176-80 feet. Gypsy Oil Co.'s No. 2 B. Doser, NW cor. SE NE, Section 7-8-6, came in for 1,600 bbls. in Wilcox sand 4,449-53 feet. No. 4 B. Doser, NE cor., Section 7-8-6, flowed 2,122 bbls. from Wilcox sand 4,491-97 feet. Gypsy Oil Co.'s No. 2 Hardy, SW cor. NE, Section 7-8-6, was completed for 677 bbls. in Wilcox sand 4,439-42 feet. No. 3 Hardy, SE cor. NW, Section 7-8-6, made 650 bbls. from Wilcox sand 4,660-66 feet. No. 4 Hardy, SW cor. SE NW, Section 7-8-6, had Wilcox sand 4,380-84 feet and made 275 bbls.

No. 1 Harjoche, NE cor. SE, Section 7-8-6, made 580 bbls. from Wilcox sand 4,352-57 feet. No. 2 Harjoche, SE cor. NW SE, Section 7-8-6, produced 600 bbls. from Wilcox sand 4,443-45 feet. No. 3 Harjoche, NE cor. NW SE, Section 7-8-6, came in for 700 bbls. in Wilcox sand 4,346-51 feet. Independent Oil & Gas Co. & Kistler's No. 1 Payne, NE cor. NW, Section 7-8-6, was completed for 1,655 bbls. in Wilcox sand 4,279-83 feet. No. 2 Payne, NW cor. NE NW, Section 7-8-6, made 805 bbls. from Wilcox sand 4,306-11 feet.

Marland Oil Co.'s No. 2 Maines, SW cor. SE SW, Section 7-8-6, completed for 951 bbls. in Wilcox sand 4,473-79 feet. Minnehoma Oil Co.'s No. 1 Neal, NE cor. NW NW, Section 7-8-6, made 1,751 bbls. from Wilcox sand 4,505-08 feet. C. L. McMahon and others' No. 1 Harjo, SW cor. NW SE, Section 7-8-6, swabbed 360 bbls. from Wilcox sand 4,330-52 feet. Shell Petroleum Corp. & Papoose Oil Co.'s No. 2 Maines, NE cor. NW SW, Section 7-8-6, made 736 bbls. from Wilcox sand 4,376-82 feet. No. 3 Maines, SE cor. SW SW, Section 7-8-6, flowed 1,146 bbls. from Wilcox sand 4,284-89 feet.

Sinclair Oil & Gas Co.'s No. 1 Hardy, NW cor. NE SW, Section 7-8-6, had Wilcox sand 4,221-32 feet and made 1,300 bbls. No. 2 Hardy, NE cor. SW, Section 7-8-6, had Wilcox sand 4,268-78 feet and produced 800 bbls. No. 3 Hardy, SE cor. NE SW, Section 7-8-6, made 700 bbls. from Wilcox sand 4,247-61 feet. T. B. Slick's No. 1 Crain, NW cor. SE SE, Section 7-8-6, made 965 bbls. from Wilcox sand 4,303-07 feet.

Gypsy Oil Co.'s No. 1 S. Micco, SW cor. NW, Section 8-8-6, was completed for 96 bbls. in Wilcox sand 4,488-91 feet. Twin State Oil Co.'s No. 2 Hayes, NE cor., Section 8-8-6, made 1,505 bbls. in Wilcox sand 4,205-13 feet. Carter Oil Co. & Denver Producing & Refining Co.'s No. 2 Melissa, NW cor., Section 9-8-6, was completed for 1,533 bbls. in Wilcox sand 4,279-88 feet. Carter Oil Co.'s No. 2 Fuswa, NE cor. NW NW, Section 18-8-6, made 2,110 bbls. from Wilcox sand 4,471-77 feet.

Sinclair Oil & Gas Co.'s No. 2 Blanton, NE cor. SW NW, Section 11-7-6, Little River Pool, was completed for 250 bbls. in second Wilcox sand 4,318-24 feet. Reiter-Foster Oil Corp.'s No. 2 Ritter, NW cor. NE, Section 31-7-6, is dry and abandoned at 1,295 feet. Producers & Refiners Corp.'s No. 2 Lustey, SE cor. NE NW, Section 5-7-7, made 420 bbls. from Wilcox sand 4,424-31 feet. The Texas Company's No. 1 Lewis, SW cor. SE NW, Section 13-5-7, West Allen area, was completed for 2,000,000 feet of gas in Cromwell sand 2,909-2,948 feet.

Stephens County

Magnolia Petroleum Co.'s No. 7 Shaffer-Young, NW cor. SW SE SW, Section 29-1-8w, is rigging up to deepen from 2,154 feet. No. 10 Stevens, NW cor. NE NW, Section 33-1s-8w, is preparing to deepen from 2,278 feet. American Pipe Line Co.'s No. 4 Nigh, SW cor. SE NW, Section 34-1s-8w, is rigging up. Magnolia Petroleum Co. has the rig up for No. 21 Kagay, NW cor. SE SE SW, Section 34-1s-8w. Lone Eagle Oil Co. has built the rig to deepen No. 3 Simpson, NE cor. NW SE, Section 34-1s-8w. Atlantic Oil Producing Co. has rig material on the ground for No. 3 Taylor, NW cor. SW NW, Section 12-1s-4w. Pace and others' No. 3 McMasters, SW cor. NE NE, Section 13-2s-8w, is rigging up.

Connor and others' No. 1 Worrell, CSL N half NE NW, Section 22-1s-8w, has been abandoned at 2,250 feet. Magnolia Petroleum Co.'s No. 20 Kagay, SW cor. SE SW, Section 34-1s-8w, is producing 90 bbls. from sand 1,625-44 feet. Lone

Eagle Oil Co.'s No. 7 Simpson, NE cor. SW NE SE, Section 34-1s-8w, made 25 bbls. from sand 1,837-40 feet. Ilsing, Russell & Nance's No. 1 Houston, NE cor. SW SW, Section 12-1s-7w, has been abandoned at 2,501 feet. Magnolia Petroleum Co.'s No. 1 Green, SW cor. NE, Section 13-1s-4w, made 8,000,000 feet of gas in broken sand 2,517-50 feet, total depth 3,619 feet. Ridgeway and others' No. 1 Regan, SW cor. SE SE, Section 15-2s-6w, is dry and abandoned at 2,508 feet.

Tillman County

Dixie Oil Co.'s No. 1 Harrison, NE cor., Section 29-3s-18w, has been abandoned at 3,259 feet.

Tulsa County

F. A. Baker's No. 1 M. D. Davis, SE cor. NE, Section 26-19-11, is drilling at 850 feet.

Wagoner County

C. F. Finefield's No. 6 Vann, C N half SW, Section 22-16-19, is a machine rigging up. Horner and others' No. 1 Irving, NW cor. SE, Section 22-18-17, is dry and abandoned at 885 feet.

The production of the Greater Seminole area by companies and leases on Thursday, March 7, follows:

Little River Pool

Company. farm—	Location	Wells	Prod.
Amerada:			
Nitey	2- 7-6	3	775
Amerada-Wilcox:			
Fore	35- 8-6	2	335
Barnsdall:			
Cotcha	23- 7-6	2	930
Hotulke	22- 7-6	3	360
Walker	4- 7-6	1	493
Blackwell:			
Baker	11- 7-6	4	1,660
Nitey	35- 8-6	5	1,210
Talley	14- 7-6	4	815
Bryan & Emery:			
Walker	4- 7-6	1	13
Carter:			
Cotcha, M.	23- 7-6	3	135
Cudjo, L.	23- 7-6	2	80
Fish	36- 8-6	4	805
Harjo, C.	11- 7-6	3	3,020
Harjo, M.	13- 7-6	4	1,837
Jackson	11- 7-6	4	1,440
Larney	24- 7-6	4	2,387
Lena	10- 7-6	1	1,115
Moore	11- 7-6	2	495
Tewee	14- 7-6	6	1,400
Thomas	11- 7-6	1	590
Wilson	12- 7-6	1	345
Champlin:			
Tewee	14- 7-6	2	1,542
Continental:			
Cosar	36- 8-6	7	1,410
Cosar, M.	25- 8-6	1	490
Continental & Fisher:			
Milsey	11- 7-6	2	720
Empire:			
Charty	24- 7-6	1	....
Coker	13- 7-6	2	982
Sandlin	3- 7-6	1	10
Gypsy:			
Brown, C.	33- 8-6	2	385
Brown, M.	33- 8-6	1	810
Campbell	33- 7-6	2	40
Conard	22- 7-6	2	615
Cosar, W.	36- 8-6	1	137
Cotcha	23- 7-6	6	1,755
Denmark	11- 7-6	4	1,480
Hulhoke	14- 7-6	10	1,632
Mungee	1- 7-6	1	7
Payne	5- 7-7	1	....
Pottie	35- 8-6	4	1,050
Renton	11- 7-6	3	380
Carpenter	27- 7-6	1	1,205
Independent:			
Davis, R.	13- 7-6	4	2,180
Tewee	14- 7-6	6	1,572
Williams	15- 7-6	1	340
Independent & Highway:			
Harris	23- 7-6	8	2,433
Independent & White Eagle:			
Davis	2- 7-6	4	405
I. T. I. O.:			
Campbell	1- 7-6	1	56
Dungan	35- 8-6	3	333
House, M. A.	1- 7-6	1	36
House, W. E.	1- 7-6	1	6
House "B"	2- 7-6	4	1,006
Hull	26- 8-6	3	199
Jackson	1- 7-6	3	296
McCulla	1- 7-6	3	103
Nitey	2- 7-6	6	178
Phoebe "A"	36- 8-6	2	55
Phoebe "B"	36- 8-6	3	70
Reed	1- 7-6	1	9
Soketheche	1- 7-6	3	479
Magnolia:			
Cruse	2- 7-6	4	175
Denby	11- 7-6	4	336
Harjo, A.	14- 7-6	2	127
Harjo, B.	14- 7-6	2	225
Pottie	35- 8-6	4	42
Reed, E.	31- 8-7	1	30
Reed, I.	22- 7-6	3	800
Marland & Shaffer:			
Harrison	4- 7-7	1	457
McCulloch & Sands:			
Harrison	4- 7-6	1	11
Mid-Continent:			
Brunner	11- 7-6	4	330
Klech	23- 7-6	1	80
Smith	5- 7-7	3	3,205
Wadsworth	36- 8-6	7	300
W. B. Pine:			
Hoyecha	26- 8-6	6	1,861
Pine-Phillips:			
Pottie	35- 8-6	1	340
Prairie:			
Chilcoat	25- 8-6	3	465
Dungan	35- 8-6	1	10
Gibson	14- 7-6	5	1,040
Harris	14- 7-6	4	825
House	2- 7-6	4	250
Johnson	24- 7-6	1	415
Lustey	5- 7-7	2	40
Moppin	24- 7-6	2	1,525
Talley	14- 7-6	4	905
Prairie & Amerada:			
Sunny	14- 7-6	7	2,970
Pure:			
Brinson	24- 7-6	2	1,386
Cotcha	14- 7-6	10	2,658
Harjo	11- 7-6	4	1,161
Hollins	11- 7-6	1	338
Reiter-Foster:			
Bunyard	14- 7-6	4	1,065
Jefferson	31- 7-6	1	20
Shaffer:			
Narcome	36- 8-6	2	290
Shell:			
Caesar	11- 7-6	1	50
Glass	26- 7-6	1	36
Hotulke	23- 7-6	4	809
Jeffries	32- 8-7	1	20
Johnson	13- 7-6	4	2,792
Sinclair:			
Blanton	11- 7-6	1	370
Cosar	30- 8-6	3	935
Haney	12- 7-6	1	95
Tewee	14- 7-6	2	1,115
Sinclair & Kingwood:			
Pompey	24- 7-6	1	75
Skelly:			
Carl	14- 7-6	2	1,540
Slick:			
Reed	13- 7-6	2	1,300
Williams	15- 7-6	2	770
Wood	26- 7-6	1	295
Slick & Fine:			
Coker	1- 7-6	1	800
Snowden-McSweeney:			
Tiger	13- 7-6	3	47
Superior:			
Potulka	31- 8-6	1	....
Soketheche	1- 7-6	1	5
Texas:			
Brooks	25- 8-6	1	18
Coker	1- 7-6	5	225
Janey	11- 7-6	3	695
Texas & Independent:			
Hotulke	23- 7-6	4	1,800
Hotulke	22- 7-6	1	....
Tidal:			
House	1- 7-6	2	290
Johnson	1- 7-6	1	34
Twin States:			
Lowe	25- 8-6	1	60
Total		324	84,515

Bowlegs Pool

Amerada:			
Roscoe	15- 8-6	8	1,020
Atlantic:			
Baker	10- 8-6	4	390
Fleet	23- 8-6	3	160
Grayson	13- 8-6	4	450
Jones, A.	16- 8-6	2	60
Jones, C.	9- 8-6	1	110
Barnsdall:			
McNac	28- 8-6	1	21
Murrow	11- 8-6	4	320
Carter Oil:			
Bowlegs	15- 8-6	4	530
Burden	23- 8-6	2	200
Harjoche	14- 8-6	6	550
Hilly	23- 8-6	3	177
Jones	11- 8-6	4	420
Walker	15- 8-6	4	355
Wise	23- 8-6	11	1,337
Dixie:			
Culley	11- 8-6	1	75
Empire:			
Lacy	14- 8-6	6	342
Wise	23- 8-6	2	150
Gypsy:			
Bowlegs	22- 8-6	1	40
Bradley	9- 8-6	1	3
Cumsey	10- 8-6	4	787
Grayson	13- 8-6	4	465
Harjoche	10- 8-6	3	590
Jones	11- 8-6	1	3
Walker	15- 8-6	7	527
Wise	23- 8-6	2	165
I. T. I. O.:			
Barnett	24- 8-6	2	151
Barnett "B"	23- 8-6	1	43
Billington	22- 8-6	5	140
Bowlegs	22- 8-6	10	1,265
Davis	13- 8-6	4	290
Fay	13- 8-6	9	952
Goforth	15- 8-6	12	1,167
Livingstone	15- 8-6	10	1,345
Lizzie	13- 8-6	3	214
Walker	15- 8-6	8	845
Williams	12- 8-6	1	102
Wilmott	15- 8-6	4	151
Work	24- 8-6	1	32
Youngblood	24- 8-6	2	96
Magnolia:			
Davis	13- 8-6	3	371
Davis, M.	13- 8-6	1	184
Hammond	10- 8-6	8	556
Rhodos	12- 8-6	5	440
Van Buskirk	9- 8-6	3	624
McCulloch:			
Bowlegs	22- 8-6	2	175
Mid-Continent:			
Baker	10- 8-6	4	175
Bowlegs	22- 8-6	1	....
Smith	12- 8-6	6	595
Minnehoma:			
Bowlegs	15- 8-6	4	157
Prairie:			
Gahagan	23- 8-6	3	445
Harber	10- 8-6	8	1,740
Jones	11- 8-6	4	335
Templeton	12- 8-6	5	2,040
Whitney	23- 8-6	4	360
Pure Oil:			
Reed	14- 8-6	14	2,107
Strother "D" 11 &	14- 8-6	4	382
Strother "F"	10- 8-6	7	2,142
Roxana:			
Taylor	16- 8-6	5	53
Shaffer:			
Lacy	14- 8-6	3	355
Sinclair:			
Cumsey	10- 8-6	4	675
Ellen	11- 8-6	6	415
Harjo	14- 8-6	3	722
Jones	9- 8-6	7	350
Taylor	10- 8-6	4	625
Taylor, W.	10- 8-6	3	540
Walker	22- 8-6	4	732
Slick:			
Jones	3- 8-6	1	274
Texas:			
Reed	14- 8-6	11	690
Tidal:			
Grayson	13- 8-6	4	430
Harjoche	10- 8-6	6	825
Total		308	35,555

Earlsboro Pool

Amerada:			
Anderson	15- 9-5	2	311
Cowden	4- 9-5	7	682
Rogers	3- 9-5	2	76
Atlantic & Gypsy:			
Delaware	13- 9-4	1	....
Atlantic & Sinclair:			
Foreman	18- 9-5	1	105
Barnsdall:			
Brown	10- 9-5	4	1,290
Bruner, F.	2- 9-5	2	175
Bruner, N.	10- 9-5	3	1,142
Cudjo	14- 9-5	1	32
Davis, D.	11- 9-5	3	451
Davis, J.	11- 9-5	4	1,223
Davis, M.	11- 9-5	2	50
Gibson	9- 9-5	7	1,422
Hern	15- 9-5	1	1
Ingram	1- 9-5	8	380
Pack, S.	10- 9-5	4	89
Peter	10- 9-5	4	60
Sango	1- 9-5	2	1,373
Sebalka	15- 9-5	1	125
Sullivan, H.	11- 9-5	1	12
Sull-Harjo	10- 9-5	2	50
Wasutke	12- 9-5	3	831
Burke-Greis:			
Wisner	6- 9-6	2	560
Burke & Red Bank:			
Mays	1- 9-5	1	1,150
Carter:			
Davis	13- 9-5	3	175
James	6- 9-6	4	1,990
Carter et al:			
Gilliam	13- 9-5	2	2,285
Continental:			
Kays	2- 9-5	2	52
Spencer	12- 9-5	4	590
Empire:			
Barker	12- 9-5	1	30
Edmondson	3- 9-5	3	80
Empire & Amerada:			
Bullock	8- 9-5	1	515
Gypsy:			
Bruner	10- 9-5	4	1,645
Carter, B.	11- 9-5	7	2,122
Earl	16- 9-5	1	13
Hunick	5- 9-5	2	1,710
Noble	12- 9-5	4	1,147
Peter	10- 9-5	1	102
Sango	1- 9-5	13	2,472
State	16- 9-5	3	267
Independent:			
Bruner	10- 9-5	3	327
Sullivan	10- 9-5	1	15
Knapp	8- 9-5	4	1,740
Independent-Margay:			
Gaina	11- 9-5	3	305
Magnolia:			
Bryant	9- 9-5	6	290
Cowden	4- 9-5	2	20
Dixon	12- 9-5	1	17
Edmondson	3- 9-5	1	4
Germany	30- 9-5	1	23
Gilliam	13- 9-5	1	2,756
Holmsley	11- 9-5	6	23
Hyde	13- 9-5	1	436
Ingram	10- 9-5	1	15
Lena	10- 9-5	3	49
Moore	24- 9-5	1	50
Seay	12- 9-5	9	552
Simpson	10- 9-5	4	288
Sparks	11- 9-5	6	153
Sullivan	12- 9-5	3	100
Mid-Continent:			
McCumber	9- 9-5	7	25
Rogers	5- 9-5	2	1,130
Mid-Kansas:			
Anderson	14- 9-5	2	40
Phillips:			
Dunaway	14- 9-5	1	20
Prairie:			
Baker	24- 9-5	2	90
Davis	13- 9-5	3	895
Graham, C.	3- 9-5	2	20
Graham, O.	10- 9-5	4	1,000
Stidham	11- 9-5	9	915
Prairie & Whitney:			
Harjo	24- 9-5	1	....
Roxana:			
Bayless	17- 9-5	1	17
Hearn	13- 9-5	1	112
Spencer	12- 9-5	2	1,199
Shaffer:			
Clark	1- 9-5	3	215
McCoy	36-10-5	1	....
Sinclair:			
Foreman	18- 9-5	1	15
Hollins	12- 9-5	1	25
Sango	2- 9-5	4	1,450
Skelly:			
Maya	1- 9-5	2	1,461
Shepard	6- 9-6	1	2,157
Spencer	12- 9-5	1	....
Skelly & Atlantic:			
Cherry	6- 9-6	2	692
Lottie	6- 9-6	1	1,912
Slick:			
James	6- 9-6	1	1,274
Slick et al:			
Campbell	6- 9-6	3	3,174
Superior:			
Ingram	1- 9-5	1	795
Walker	2- 9-5	3	1,785
Texas:			
Anderson	2- 9-5	8	140
Brown	10- 9-5	8	180
James	6- 9-6	2	360
Rogers	5- 9-5	5	705
Wilmott	10- 9-5	7	75
Tidal:			
Walker	35-10-5	1	1,545
Watkins	9- 9-5	7	1,300
Twin States:			
Barker	12- 9-5	3	55
Hern	2- 9-5	4	25
Total		300	59,252

MICHIGAN FIELDS

(Continued from Page 56)

on the 10-acre lease and has started No. 2 Hill with a fishing job at 400 feet. Permits for the No. 5 Heinz, NE SW Section 3-10-16, Muskegon Township, and for the No. 6 Heinz, NW SE Section 8-10-16, also have been issued. These are on tracts of five acres or less on each of which a producing well is located and second wells have been started.

The ninth permit is for the company's No. 5 Torrent well, SE SW Section 8-10-16.

Three other new locations have been made in Muskegon Township: Swastika Oil & Gas Co.'s No. 2-A Gilbert, NW NE Section 7-10-16; Concord Oil & Gas Co.'s No. 2 Giles, NE NW Section 7-10-16, and Traverse Oil Co.'s No. 1 John Smith, SW NW Section 9-10-16. Two new locations have been announced for Laketon Township, Johnson Oil Refining Co.'s No. 2 Grotefeld, NE NE Section 12-10-17, and Nelson and Witt, Inc.'s No. 2 G. Fenner, NE SW Section 11-10-17, an offset to the Buckeye Oil & Gas Co.'s No. 1 Van Loo.

Muskegon County Wildcat

Another Muskegon County wildcat was dry this week in the Dundee formation at 2,260 feet; Cloverville Oil Co.'s No. 1 Arthur Born, NE NE Section 12-9-16, Fruitport Township.

Western Michigan Wildcats

The Muskegon Oil Corp. and associated companies completed their first deep test in Ottawa County, the Essenberg-Dryer, SE SW Section 13-5-16, Park Township, as a dry hole in the Dundee at 2,007 feet, where they struck bottom water.

Location for the Brooks Township, Newaygo County, deep test to a 5,000-foot maximum for the Mexican Oil Co. was announced this week. It will be on the Woodward and Hatch lease, SE SE Section 5.

Royal R. Miller's No. 1 Paul Sako, NE NW Section 27-7-16, Grand Haven Township, Ottawa County, is rigging up. The Newaygo Gas & Oil Co.'s No. 1 A. J. Bates, NE NE SE Section 12-13-13, Sherman Township, Newaygo County, also is rigging.

The Muskegon Oil Corp. and associated companies are drilling four structure tests and one deep test in Oceana County.

Mount Pleasant Field

The Pure Oil Co., pioneer and owner of the greater share of the acreage in the Mount Pleasant, Mich., oil field, got into the big production there last week with a well which will make between 800 and 1,000 bbls. a day. The new well is on the Harris and Reems lease, SE SW Section 18-14-2, Greendale Township, Midland County, more than 1 mile southeast of the previous record producer.

Top of the Dundee was struck at 3,535 feet and the big pay was struck at 3,586 feet. Only a slight show of oil had been encountered before the driller struck the big pay. The well made a barrel a minute for a short time and was making about 800 bbls. a day yesterday. It is three-quarters of a mile south of M-20 and one-half mile east of the line between Midland and Isabella Counties. It is the largest producer completed in the Midland County half of the field and the sixth producer.

Daily production of the field will be nearly double to about 2,000 bbls. by the new well. The Pure Oil Co. is piping the oil to Mount Pleasant and shipped to Ontario refineries. Producers have received $1.62 per barrel for the Mount Pleasant oil since the last cut in Mid-Continent prices. It is about 44 gravity and is sweet oil.

Storage and pipe line facilities will be crowded by the new completion. Two 2-inch pipe lines now carry the oil to Mount Pleasant. A new 4-inch line will be laid and additional tankage erected.

The Rockford Oil Syndicate's No. 1 Harris, SE SW Section 11-14-3, Chippewa Township, Isabella County, is drilling at about 2,300 feet and will probably be next completed.

Natural Gasoline Manufacture

EXPLAIN OLD METHOD OF PRODUCING BLAU GASES

"Blau gas," in which the natural gasoline industry is indirectly interested, as it is a competitor of some of the special gases which are now being manufactured on a limited scale by gasoline plant operators, is not a new product, despite popular opinion to the contrary. The Bureau of Engineering at Washington, D. C., in an interesting statement relative to Blau gas, points out that its manufacture in England was known as early as 1815.

The bureau's statement relative to the gas follows, in part:

"The recent development in airship propulsion involving the use of oil gas as fuel led to a revival of interest in this substance, as well as to much misunderstanding, beginning with the very name of the gas. As a matter of fact, it is not 'blue' gas at all but 'Blau' gas, so called because it was developed by a German chemist by the name of Blau. The misunderstanding arose because 'blau' in German means 'blue.'

"Accounts appearing in the daily press have given the impression that Blau gas is something quite new, which is by no means the case, as the development of this type of gas dates back to the work of Taylor in 1815, and, as a matter of fact, as early as 1823 there were 11 English municipal plants which used gas of this type.

"Quite a number of oils may be used for the manufacture of this kind of gas; for example, mineral-oil distillates from lignite tar or shale tar, and in tropical countries even vegetable oils, such as castor oil, have been employed. If mineral oil is used, only the fraction between 250 and 360 degrees Centigrade gives Blau gas. This fraction in oil not subject to cracking lies between kerosenes and the lubricating oils and constitutes something like 10 per cent of the crude.

"The gas is obtained by spraying gas oil into highly heated retorts. This produces, first, a vaporization of the oil, and then a break-up, resulting in the transformation of the oil into oil gas, tar and coke, together with a certain amount of soot and lampblack. The proportions of the constituents of the derived products can be regulated to a considerable extent by proper control of temperature and composition of initial material. The gas consists of light hydrocarbons, such as propanes, pentanes, etc., and may be used in various ways.

Explain Production Method

"The Blau Gas Co. of Augsburg, Germany, produce a liquid oil gas which they call Blau gas by gasifying the oil at temperatures of from 500 to 600 degrees Centigrade. This gas is next purified and compressed to a pressure of 20 atmospheres in reciprocating pumps cooled by

(Continued on Page 137)

DOUBLE CAPACITY OF ELWOOD TERRACE PLANT

The Barnsdall Oil Co. of California and the Rio Grande Oil Co. have let contracts to double the capacity of their jointly owned gasoline plant in the new Elwood Terrace Field of California. The new unit will be practically a duplicate of the plant already operating. The present unit has a capacity of 30,000 gallons daily and the production recently has increased so that it is manufacturing 26,000 gallons of gasoline daily.

The new unit will be of the oil absorption type and will take care of additional gas from new wells. The Elwood Terrace Pool promises to be a large source of natural gasoline for the West Coast. The wells which have been completed have a large volume of gas with a heavy gasoline content.

SHOULD STRESS RESPONSIBILITY OF INDIVIDUAL IN SAFETY WORK

By Otto Peters*
Superintendent, Hanlon Gasoline Co.

The dictionary defines accident as an event which is unexpected. An injury brought about by oneself is not an accident. I would rather that a man report he had hurt himself than report he had an accident. Accident is the effect of a cause, the cause 98 times out of 100 being thoughtlessness. My knowledge of accidents is based upon experience and observation and not upon statistics. My thought is upon the fact that time and again we see the man most familiar with his work hurt himself. Again and again men hurt themselves in the same manner. Why is it that some men hurt themselves more often than others do?

The employer is spending money and making all efforts to safeguard all things that can possibly be construed as dangerous. He does everything under the sun to eliminate hazards in any form, from the placement of extra lights to the employment of extra men. Each and every injury is traced down to find its cause and then efforts are made to prevent it happening again. Meetings are held to discuss safety practice; pictures are shown, talks are illustrated, instructions are issued, but the fact remains that defective tools are still being used, shoes are still unsoled, goggles are not used and indifference on the part of the employe still exists, ignoring the fact that safety is an individual resposibility.

I am impressed with the fact that the ambition of all wage earners is to increase their salary earning. This is a fundamental ambition for the benefit of their dependents, yet this ambitious worker is apt not to think of the economic loss in the event of his injury. I fear that men do not think of the untold suffering, the agony of suspense and worry on the part of the wife and children when the wage earner is laid up. I cannot express in writing the tragic expression I have seen on the face of the wife when taking home the injured husband. The employe that meets with injury suffers pain and financial loss, the hardship to his family cannot be estimated and it is an established fact that to his company he costs them $4 to every $1 of his accident cost, plus the harmful attitude of resentment toward the company on the part of himself and family, however unjust it may be, and this resentment many times finds expression in lawsuit.

*Plant Operators Meeting, Ranger.

Cause of Accidents

The first remark of the one who has hurt himself is that he did not think. Ninety-eight per cent of all accidents are due to not thinking. Nails in the feet, a screwdriver in the palms of the hands, splinters in the eyes, reckless driving, all these indicate lack of thought and it follows that in connection with the present method of teaching accident prevention, the habit of thinking accident has to be taught. It is not enough to show the corrective measures taken in the placing of safeguards because the same man who caused the guards to be placed will meet with the same injury if he works at another place where the guards are not used.

I fear no contradiction when I say accident thinking must be taught. I question how many men give thought to the functioning of their conscious and subconscious minds. I fear no ridicule in saying there is no such thing as forgetting, I must admit that we forget, but that is because we do not train our minds. How easy it is to visualize that our mind has two compartments and that in each compartment there are millions of servants to do our biddings, one to accept each impression to carry it to one who retains it subject to our call as we need it. How many men in their daily work anticipate accidents, I do not mean fear of accidents, I mean do they stop a moment to think accident, does the foreman hesitate long enough to make sure of his ground, sure of his men, does he give that needed word of caution? There

(Continued on Page 137)

A PRACTICAL SUGGESTION

PLANT FLEXIBILITY

Casinghead gas is composed of a series of hydrocarbons varying considerably in physical properties. Almost without regard to method used for extraction of gasoline constituents, unstable fractions will be liquefied along with the desirable ones. The quantity on these less desirable fractions may, however, be controlled to some extent before fractionating or stabilizing. It must be borne in mind that the individual characteristics of raw gas being processed is the dominant factor in product manufactured and that one operator may be required with a particular gas to make 93 degree gravity 91 per cent recovery, while another will make 63 degree gravity 98 per cent recovery, and the residue gas from each plant will have the same content as shown by a charcoal test. Some obstinate problems yield to solution when worked upon with our new tool, fundamental analysis.

Plant efficiency ordinarily is figured on the basis of tests on the inlet and discharge gas from the absorber or with field tests, meter readings and daily production. For plant control methods these are satisfactory but they do not necessarily give the true picture as the plant may show a 140 per cent efficiency and still the butane recovery would be only 60 per cent.

The grade of gasoline made can be changed to a certain extent in the absorbers provided there is sufficient intimacy of contact so that equilibrium is approached. A more stable gasoline may be recovered by decreasing the rate of circulation of oil and decreasing the temperature of absorption menstrum. It is known that absorption varies inversely with the vapor pressure of components, consequently since vapor pressure increases as the temperature rises, it is obvious that with lower temperatures the oil will absorb larger proportions of hydrocarbons having lower vapor pressure. The vapor pressure of butanes drops more rapidly with lowering in temperature than the vapor pressure of propane and therefore propane has a greater tendency to escape from the oil at the lower temperatures. Pressure of gas on absorbers is not ordinarily considered a variant.

The still is ordinarily operated both as to temperature and quantity of agitation-steam to strip the absorption oil of all of its gasoline and the regulation should not be changed in order to effect a change in grade of gasoline. Inefficient separation in still will immediately result in inefficient recovery, the product usually being lower gravity and more stable gasoline.

Dephlegmator Variation

The range of variation for the dephlegmator is narrow and its effect on final product slight, assuming endpoint gasoline is condensed. A decrease in temperature will increase the gravity and decrease recovery and endpoint of gasoline.

A rather wide range available for adjustment is the pressure at which condensation takes place. By increasing this pressure, the gasoline is made more volatile. If recompressor is under capacity it may be necessary to carry a maximum pressure to prevent overloading, too high pressure on other hand may cause inefficient still operation.

The gravity of gasoline made is increased by raising the pressure on the recompressor. If tail gas absorber is used a similar result is accomplished by increasing the rate of oil circulation.

In the rectifying column the character of finished product may be varied to make almost any grade of natural gasoline. The operating conditions will depend on the gasoline actually being fractionated and upon market conditions. At some plants it might be more feasible to operate so that not only all propane but all of the butanes are removed. Since this is really a distillation process raising the temperature (constant pressure) will decrease the volatility of the gasoline.

Practical suggestions by those connected with the construction and operation of natural gasoline plants are invited. Payment will be made as soon as suggestions are accepted. Address all communications to the Natural Gasoline Department, The Oil and Gas Journal, Tulsa.

LOW EVAPORATION LOSS IN TANKER SHIPMENTS

The marine department of The Texas Company of California has made improvements in two of its tankers which have practically eliminated losses in the transportation of natural gasoline. Cargoes have been moved through the Panama Canal with no loss.

By painting the black hulls white or aluminum color the marine department has reduced the cargo temperature 12 degrees Fahrenheit. Another improvement is the removal of the old type of hatch cover. Measuring is now carried on by observation through glass ports at numbered steps in the hold.

Vents leading from the fixed hatch cover pass through a vacuum valve and a flame arrester, which is said to actually check a flame's progress. It does not, however, check the gasses, which if they cannot be thwarted by cooling, are run through a recovery unit under pressure cooling, condensed and returned to tanks as liquid gasoline.

The cargo's temperature is lowered with a refrigeration adaptation—a sprinkling system spraying all the deck with sightly batteries of fountains. Salt water is used and the sprays are turned on shortly after leaving the California coast and maintained until the ship is far up the Atlantic seaboard. This cooling checks evaporation much better than solid streams of water on the deck.

Mercury tubes under the bridge serve to tell immediately of any increased pressure from volatile gas in the various tanks, while thermometers, inclosed in brass as an added precaution against sparks, dangle down into the cargo and can be pulled up any time to note the cargo's temperature.

There is only one final vent on the ship and that runs by pipe to the top of the foremast, and even that has a flame arrester.

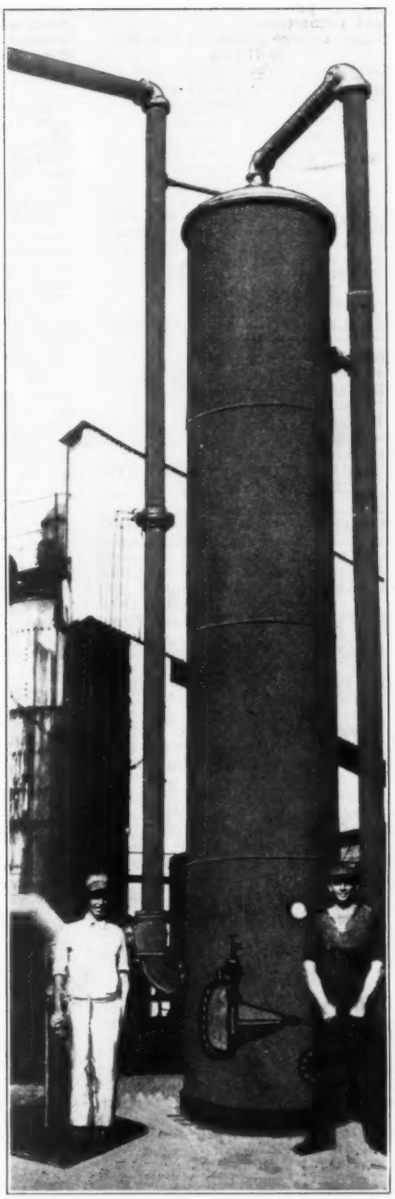
E R E C O

DUPLEX ABSORBERS

Are Good Absorbers

Equilibrium is more nearly approached between the gas and oil because of the extreme intimacy of contact.

When desiring definite extraction of hydrocarbon constituents from gas it will be worth your while to install them.



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FOR SALE—EQUIPMENT

NOTICE—FOR SALE—EQUIPMENT
Humble refinery—Standard Oil product cracking plant. Wilson Refining—tank, stills, pumps, agitators, boilers. Pipe and connections.
Will buy salvage plants or pipe lines.
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BUY OR RENT USED PIPE
and Save the Difference
15,000′— 5⅛″ Casing.
10,000′— 6⅝″ Casing.
5,000′— 8¼″ Casing.
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1,000′—12½″ Casing.
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We will rent this casing or any other pipe which you may need. Let us finance your operations by carrying your pipe and casing investment for you.
KEYSTONE PIPE & SUPPLY CO.
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USED LINE PIPE AND CASING FOR SALE
250,000′ 2″ Line Used @ 9c.
40,000′ 3″ Line Used @ 18c
50,000′ 4″ Line Used @ 22c
10,000′ 6″ Line Used @ 40c
10,000′ 8″ Line Used @ 65c
Above pipe located in our yard for immediate shipment.
LOUISIANA IRON & SUPPLY CO.
2525 Mansfield Road
Shreveport, La.

FOR SALE—Two 14 x 24—150 H. P. Duplex D. A. Cooper Gas Engines direct connected to Hall Compressors, inter and after coolers, all in first-class condition. Priced right. Detailed description and price on application CLARENDON GASOLINE COMPANY, 66 Main Street, Bradford, Penna.

READY FOR IMMEDIATE DELIVERY:
60,000 Ft. 12″ O. D. USED PLAIN END PIPE.
All sizes in line pipe and casing from 2″ to 15½″ inclusive.
PRODUCERS PIPE & SUPPLY CO.
612-13 Kennedy Building
Tulsa, Okla.

FOR SALE complete set Standard Tools. 12×12 AJAX engine (NEW). 2,000 ft., 6⅝ inch, 24-pound. 700 ft., 10-inch, 52-pound. 1,500 ft., 2-inch pipe. F. E. Turner, 217½ Broadway, Muskogee, Okla.

BOILERS—New 40 hp. non-code oil country type complete mounted or unmounted. Special Price. Star Drilling Machine Company, Chanute, Kans.

HYDRAULIC PUMPS

2—5″×20″ GOULD HORIZONTAL HYDRAULIC PUMPS. Horizontal triplex, double-acting type; outside end packed; Gould's figure No. 1,521; 365 gallons per minute; 12,500 barrels per 24 hours; 1,000 lbs. working pressure; 5″ diameter of plunger; 20″ stroke; herringbone gear and pinion.
Real attractive prices.
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FOR SALE—MAPS

NEW MAP OF MID-CONTINENT OIL FIELDS, suitable for pocket or desk top, shows counties and producing areas in Oklahoma, Kansas, Texas, Arkansas, Louisiana and Eastern New Mexico. Postpaid for $1. Kelley Map Co., P. O. Box 1773, Tulsa, Okla.

NEW OWNERSHIP and Oil Map of Brewster County, Texas. Also shows State mineral reservations. Paper $15; cloth $20, postpaid. J. P. Byers, Big Bend Abstract and Guaranty Co., Alpine, Texas.

INCORPORATIONS

DELAWARE incorporator. Charters, fees small, forms. Charles G. Guyer, 901 Market St., Wilmington, Del.

CHARTERS—Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

EQUIPMENT WANTED

WANT DRILLING OUTFIT. Derrick, Rig irons, Sills, without tools. Prefer steel Derrick, but will consider solid wood leg Turnbuckle outfit. For shipment west. Mail list of what you have, location, and best price. Address Box C-824, The Oil and Gas Journal, Tulsa, Okla.

$50,000.00 CASH
We are in the market to purchase for cash, surplus stocks of materials such as pipe, casing, oil well equipment, etc. Highest prices paid. Send full particulars on what you have to offer. New or used. Address Box C-800, The Oil and Gas Journal, Tulsa, Okla.

WANTED TO BUY scrap iron. Will pay highest market prices. Appreciate information regarding location, tonnage. Write or Wire, Garson Iron & Steel Co., First National Bank Bldg., Houston, Tex.

WANTED one 1,600 barrel, second hand, wood oil tank. Phillips and Milam, Chelsea, Okla.

BUSINESS OPPORTUNITIES

MR. INVESTOR, ask for our FREE folder on an outstanding oil investment for 1929. Trans-American Oil Corp., 407 Perrine Bldg., Oklahoma City, Okla.

CAPITAL SEEKERS—Put your project before 260 livewire brokers—cost trifling. Details free. Amster Leonard, East Orange, N. J.

THIRTY-FIVE thousand dollars wanted for development 2,000 acres; proven for commercial gas and some oil. P. O. Box 385, Houston, Texas.

BOND Issues Prepared, Issued and Handled for Manufacturing, Industrial and building contracting corporations. Financial matters taken care of promptly. What have you to offer? Address: DeLonge Co., Highland Park, Detroit, Mich.

A THOUGHT FOR TODAY—NOW
Do I know the present position of the companies in which I have bought securities, their rating, earning, history, etc.? for this information send $2.00 to
HARRY W. NELSON
Investment Counsel
Dept. B 356
Canton, Ohio.

HAVE 20,000 acre drilling block in Northern Hudspeth County, Texas. 10,000 acre drilling block in Cochran County, Texas. 15,000 acre drilling block in Hockley County, Texas. Plenty of time to start operations. Well located geologically. Want financial aid. Garland A. Tunstill, P. O. Box 907, Ft. Worth, Tex.

A live bulk station business in a wealthy farm community, owner's time taken for other interests. Address Box C-832, The Oil and Gas Journal.

I have an entirely new scientific apparatus to locate oil showing exact depth and quantity—100% accuracy—I have contracts pending and drilling equipment but need $5,000 to $10,000 additional capital. Liberal proposition to investors. Address E. J. Goeyens, Drilling Contractor, 1476 Broadway, New York.

RANCHES AND FARM LANDS

CHEAP WEST TEXAS LAND IN FEE
Being snapped up by large interests because of OIL POSSIBILITIES, as well as RANCH VALUES. Only few tracts left BREWSTER, CULBERSON Counties $1.50 bonus. Write today. J. L. FERGUSON, San Angelo, Texas.

FOR SALE—HUNTING PRESERVE
8,800 acres situated in Southeastern part of South Carolina about 40 miles from the Atlantic Ocean and bordering on two navigable rivers. All kinds of Wild Game, such as Deer, Quail, Turkey, Ducks, Fox, Rabbits and Opossum. Good fishing, boating and bathing. About seven million feet of timber on land. About 2,000 acres in cultivation, which is suitable for growing all kinds of truck, fruit and pecans. W. P. Harley, Box 453, Bowling Green, Ky.

S. E. OKLAHOMA unimproved land bargains; 40 to 1,000-acre tracts in coal, new oil and gas belt; $3 an acre up. John Cavanaugh, McAlester, Okla.

POSITIONS WANTED

POSITION WANTED — Superintendent Natural Gas Production Transmission or Distribution. 12 years experience. Age 35. Now Employed. Married. Address Box C-781, The Oil and Gas Journal, Tulsa, Okla.

TRAFFIC MANAGER with long experience with leading Oil Well Supply Manufacturers, at liberty after March 1. Wants to locate in West or South. Willing to start at reasonable salary and let results care for future. Box C-752, The Oil and Gas Journal, Tulsa, Okla.

LAWYER, Four years tax and title experience wants to connect with oil company. References. Box C-822, The Oil and Gas Journal, Tulsa, Okla.

Competent Stenographer and Bookkeeper desires position. Thoroughly familiar with all lease forms, know land descriptions, and understand legal work. Familiar with details of all clerical departments. Also Notary Public. References given. Write Zola Frost, Box 1188, Tulsa, Okla., or phone 2-6537.

GRADUATE MECHANICAL ENGINEER, married, with three years experience in refinery maintenance and construction, desires position with chance to work into position of responsibility. Would consider sales work. Now employed but good raesons for desiring to change. Address Box C-834, The Oil and Gas Journal, Tulsa, Okla.

Reliable man with all around experience in production, desires position as pumper. Prefer to work in Oklahoma; 42 years old. Can furnish best references. Have had experience as producer. Address Box C-831, The Oil and Gas Journal, Tulsa, Okla.

Competent electrical, telephone, telegraphy designing and estimating engineer three years University and fourteen years practical training. Now employed past three years with large oil company. Desires position with major oil company where there is a future. An interview would be appreciated. Address Box C-833, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

WANTED, gas service man for central Kansas town. $125.00 per month. Must be familiar with high pressure regulators and be able to repair meters. Address Box C-802, The Oil and Gas Journal, Tulsa, Okla.

LEASE MAN familiar with shallow gas wells wanted. $110.00 per month and one room shack furnished. Must live on lease. Address Box C-801, The Oil and Gas Journal, Tulsa, Okla.

DRAFTSMAN

In Tulsa, Okla., for piping, layout on absorption and compressor plant. Speed essential. Outline experience, submit sample of work, and state salary expected, in first letter. Sample will be returned. Address Box C-810, The Oil and Gas Journal, Tulsa, Okla.

ENGINEER wanted by firm in New York City, widely known in Oil Industry. Must be thoroughly familiar and capable of designing Oil Distillation Plants. Mechanical and Structural experience essential. Write stating Age, Experience and Salary expected. Address Box C-812, The Oil and Gas Journal, Tulsa, Okla.

WANTED—EXPERIENCED and capable instrument man for modern refinery. Group two location. References necessary. Address Box C-813, The Oil and Gas Journal, Tulsa, Okla.

WANTED: Civil Engineer, Graduate, with concrete and grading experience, at once. State age, salary and experience. Cabot Co., Box 1848, Pampa, Texas.

ENGINEER SUPERINTENDENT of Construction. Experienced on high pressure oil refinery equipment. State age, education, salary and detailed experience. Box C-823, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

WANTED Pumping Jack salesmen in deep territory. Give reference. P. O. Box 88, Tulsa, Okla.

WANTED — Draftsmen, prefer men with oil refinery or similar experience. Give full details of personal history, experience, salary desired, etc. Address P. O. Box 788, Wood River, Illinois.

LEASES—PRODUCTION

ATTENTION
LEASE BUYERS AND INVESTORS
We represent hundreds of California owners of New Mexico State Oil Leases in the trend of development and offer some wonderful buys in Lea, Eddy and Chaves Counties. Barnhart-Powers, 1404 Franklin St., Oakland, Calif.

CADDO COUNTY
OIL LEASES AND ROYALTIES
C. W. Ludwick
Fort Cobb, Okla.

FOR SALE—Oil and Gas Leases in Breckenridge County, Ky. Price right. J. C. Preston, Owensboro, Ky.

Rich oil and gas land for lease and drilling, located Tr. 1. N. W. ¼ Sec. 30. T. 22. R. 12. E. 160 acres, Osage County, Oklahoma. George Wagner, lease owner, 3715 Melbourne Ave., West, Cleveland, Ohio.

3,800 acre solid block, best location in Colorado County, Texas, according to Texas University bulletin, also favorable structural and geophysical indications. Free for 3,800 foot test by approved operator. Chance at four producing sands. Hiland P. Lockwood, Rice Hotel, Houston, Texas.

LEASE BUYERS
Don't buy at random. Play close in to development. Quick action. We offer no leases except around a well we are drilling ourselves, spending our own money. When you buy from us you are side by side with the major companies spending not a dime more for your lease than they. Send for ownership plat, structural map and geological report if interested in the purchase of leases in sound sensible play. Crown Oil Company, 708 Dallas National Bank Bldg., Dallas, Tex.

FOR SALE—Leases, Oil Production, Asphalt, Limestone and Other Mineral Lands. W. P. Harley, Bowling Green, Ky.

$3 to $5 per acre for West Texas land with Oil and Mineral right 40 acres up. New Mexico oil leases. Winter garden lots and truck farms on easy terms; agents wanted. A. Poe, 829 Wilson Bldg., Dallas, Tex.

ATTENTION INVESTORS

We offer an undivided ⅛ths interest in oil lease covering our 11,000 acres now producing about eight hundred barrels oil per day, also forty or fifty offset or proven locations to drill, and two hundred more locations reasonably sure of production. Wells 1,200 to 1,300 feet deep costing about $4,000.00 completed and flowing in tanks, and make fifty to three hundred barrels per day flush. Two pipe lines now taking all oil produced, and unlimited market. Lease equipment practically new, and cost over $150,000.00. Property should also produce in several deeper sands. Has enormous possibilities. Will sell ⅛ths for $75,000.00, or any portion thereof on same basis. Now paying good returns monthly. Full details, including report of petroleum engineer of National repute furnished on request. Box C-818, The Oil and Gas Journal, Tulsa, Okla.

LEA COUNTY, NEW MEXICO
FOR SALE—E½ SW¼, Sec. 31, Twp. 18S, Rge. 37E, Price $125 per acre. NW¼, Sec. 29-14S-33E, Price $3 per acre. E½ NE¼, Sec. 8, Twp. 14S-31E, $3 per acre. Address P. O. Box 422, Pittsburgh, Pa.

For Sale—Well located 80 acres Sedgwick Co., Kansas, in Barnsdall Block. Good Geology. Near drilling well. Also have block 2,500 acres. North McPherson Co. Field, no drilling requirements. G. W. Moore, Independence, Kans.

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

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MAIL your advertisement now. It will be published next week. Cash with order.

LEASES—PRODUCTION

We have about 10,000-acre Block Reno County, Kansas. Want drilling proposition for acreage. For quick information, address F. C. Purdy, Sterling, Kans.

LEASES AND ROYALTIES

Close in to production, Sedgwick and Harvey Counties, wire or write. Southwest Investment Co., 205 Orpheum Bldg., Wichita, Kans.

LEASES AND ROYALTY, Seminole County, Okla. Leases Sedgwick County, Kansas. Wm. McLeod, Box 653, Kansas City, Mo.

ROYALTIES AND LEASES, BOUGHT AND SOLD.

25 years experience in the Mid-Continent oil fields. E. J. Davied, Fort Stockton, Texas.

BROKERS AND OIL MEN—

I have under lease 5,000 acres in Illinois near good producing oil field, which oil men claim has a feeder. I have located what geologists have been looking for. Sand rock, a ledge six feet thick underlays this location, also other good formations. I am willing to let some good men or company in to help finance this and share results. Would appreciate the advice of any geologist you may have or consult. Will be in Illinois about April 1. This will bear strict investigation. Virgil Cox, Rialto, Calif.

For Sale—Southeastern New Mexico leases. Orcutt-Harris & Co., Oklahoma City, Okla.

WINKLER, PECOS, WARD, Loving and Reeves Counties. Leases and Royalties. Hemby & Anderson, Box 633 Pecos, Texas.

TEXAS
Leases and Royalties,
Drilling Blocks,
Central and Southwest Texas,
Gulf Coast.
In the play now—Bastrop, Caldwell Guadalupe, Gonzales, Wilson Counties
J. S. JONES,
Tel. Bldg. Phone 351.
LULING, TEXAS

LEASES

BUY LIKE MAJOR COMPANIES

Company now drilling deep test on rim of Permian Basin will sell as small as forty-acre lease on bottom hole money contracts to individual purchasers. Close up acreage $5.00 per acre. Same terms as to big companies. You don't part with your money until well completed. Good geology. Excellent prospect for getting oil. In trend of West Texas development and production. Big companies buying in this area. You get promising acreage quickly tested for price of wildcat acreage and make a fortune if we hit. Write for particulars. Address Box C-816 The Oil and Gas Journal, Tulsa, Okla.

WINKLER—PECOS COUNTIES
Leases and Royalties
W. S. PATTERSON
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Chicago Demand Inactive, Prices Firm

Gasoline Bought Only in Small Way in Spot Market. Kerosene Strong With Little Available. Furnace Oils Hold

By J. B. Waldo

CHICAGO, Mar. 11. — The markets opened quietly Monday, the demand being generally inactive.

Prices for gasoline were firm and kerosene was very strongly held. Gasoline was only bought in a small way in the spot market, the price range for U. S. Motor gasoline being 6¾ to 7 cents, with an upward tendency. Kerosene was not in active demand, but prices were very firm with little available at less than 6 cents.

The demand for the furnace oils was light but prices were not generally changed, with distillate selling at 4 to 4¼ cents according to gravity and color. The gas oils were also slightly easier in tone. High gravity zero fuel oils continue very scare. Owners of cars of furnace oil in transit were on the lookout for buyers, but owing to the high cost of the material were not willing to cut prices. Some accumulations of distillate on the tracks last week were closed out by the one day of cold weather and at present there are no excess cars in the yards except a very few which can be sold only for certain restricted destinations.

The demand for the heavy fuels is still rather quiet in the spot market due very largely to the many large users who are under contract for their needs. The consumption is good and is increasing for manufacturing use, although the demand for heating purposes is a little less. March to date has been unusually pleasant, temperature above normal in this section, and high winds drying the country rapidly. The week-end locally was favorable to motoring.

Post Office Gasoline Bids

Quite a number of oil men attach considerable significance to the fact that a number of those who submitted bids March 4 for the supply of gasoline required by the Chicago Post Office for the next quarter, have made a maximum price of 8½ cents. These bids are based on the Group 3 tank car market and include a maximum price. The idea is that the gasoline market during the period between April 1 and June 30 is not expected by these bidders to exceed 8½ cents. Really the important price is that which will prevail between July 1 and September 30 when the consumption is at its highest. Several of the major refiners would be glad to continue to sell at the present spot market of 7 cents until they have got rid of some of the accumulations due to the slow consumption during the first two months of this year. They have supplies which, while not burdensome, they would like to move at what is a profitable price although the profit is not large when the refiners are running at only part capacity.

Several refiners have refused to take any more business until later in the month or will accept orders only for shipment at a date which may be after April 1. These refiners have sold freely at lower prices than now prevail, some for export and some to jobbers who are in position to store material. There has been a good deal of buying at 6 and 6¼ cents, mostly from West Texas refiners and these at present are in a good position. The large stocks reported by some of the Oklahoma group are largely in the tanks of refiners with their own distribution and a large number of contract customers. These have no need for stocking up and in many cases are limited to the quantity which they can order out during any month. They do not have much storage and consequently cannot buy for future needs. When they have a bad month they must reduce their takings for the coming month having no room to take in an extra quantity of gasoline. The result is these refiners have some gasoline in storage. Occasionally during the past month some one or two of these major companies have found it necessary to go outside of their regular customers to move a part of their surplus gasoline. Necessarily, they must go to the jobber who buys in the spot market and to get his orders must name prices on an equality with those at which he is buying from his usual source of supply. The result is the occasional lapses from the regular spot price by the major refiners. During the past two weeks gasoline has been sold at 6½ cents by these refiners, but only a limited quantity and for a brief period.

Improvement Expected

The outlook is right now much better for a steady improvement in the demand. The weather over a considerable part of the territory has been very good, warm and bright for almost two weeks.

Just how many of the jobbers have stocked up for any considerable period is a question. Some state they have bought supplies that may last them for several months. These are the larger concerns with tankage. Many state they have placed orders for gasoline that will care for their needs for a briefer period. Those who depend on their contracts are ordering much more promptly and for their quota for March. Some who have bought for delivery this month are a little slow in giving shipping instructions and some refiners find it necessary to begin to press their customers for instructions. One trouble is the jobbers have in a great many cases a lot of money due them from customers which limits their supply of immediate cash and they hold back from ordering while trying to get in the money due them, but this is not a new condition nor is it any worse than for years. It simply slows up buying as well as payments.

Prices Little Changed

Prices locally have shown little change. U. S. Motor was selling all of last week at a range of from 6¾ to 7 cents. There was no attempt made to secure a higher price and very few cars sold for less than the range that were of good material. The demand was most active early in the week as a rule, although some concerns were busy all week. Many refiners are making active efforts to secure more contracts and for some reason or another there is more or less changing around of contracts. The usual contract is the 3½-cent guarantee with a split of the margin under certain conditions but some contracts are being made on unusual terms with as much as a 4-cent margin. Such contracts are usually kept secret but are being made. It has even been argued that the 4-cent Q.D.A., which prevails in this city and the surrounding suburbs, makes it necessary for any refiner who wants local contracts to offer something better than a 3½-cent guarantee.

More refiners are opening permanent sales offices here. Some are being opened by refiners who have had more or less business in this territory and find that a local office is a great help in attending to details as well as forming a meeting place with their trade. Others are being opened by refiners who are just starting or have only recently had any material to sell. Five or six such offices have been opened here since the first of the year most of them representing West Texas plants. They are making every effort to become a stronger factor. This means they are ready to name prices and terms on contracts or spot shipments more favorable to the buyer than he would be able to secure were it not for this competition.

The demand is growing stronger for the U. S. Motor grade and for the antiknock gasolines under various trade names and the higher gravities are more neglected by domestic motorists at least in this territory. Ethyl gasoline is now being distributed in the Standard of Indiana territory by several independent refiners through their own stations and through the stations of independent dealers with whom they have made contracts. It will be more freely available to motorists than previously as these new outlets are merely added to the number formerly available to motorists as the Standard Oil Co. of Indiana will continue to distribute ethyl gasoline through its various stations. There has been very little activity here in natural gasoline.

Kerosene Strong

Kerosene was very strong all of last week and as the week closed prices were being advanced, some refiners asking 6 cents for the 41-43 gravity for immediate and 6¼ cents for spot shipments. There were a few cars available at less than were held by marketers and not all the refiners were up to the new high price but the tendency was distinctly upward. Several of the large integrated companies were buying more or less kerosene and had none to sell. The Indian Refining Co. bought 100 cars for delivery to its own stations. Its purchases were spread out over several refining centers according to the refinery location with reference to the station. Early in the week marketers who were fortunate enough to own some kerosene made sales at 5⅝ cents to other marketers and this was the low price in this city. There is a good deal of buying going on quietly.

Some of the jobbing trade is prepared for the spring demand which is due now from the users of tractors. This demand has been increasing quite rapidly for two seasons and it may prove considerably larger than last year for more tractors have been sold to the farmers and with a delayed season the tractors are put to greater use. Country oil men say that where the gasoline price is not more than 2 or 3 cents higher than kerosene, the average farmer will operate his tractor on gasoline. The refiner who will admit having any kerosene in storage is the exception. The demand will almost certainly increase rapidly from now until the early part of May unless most unusual weather conditions rule. There is only an occasional call for the 42-44 gravity but the few refiners who do run this gravity are having about the usual demand for this season of the year.

Distillates Slower

The continued mild weather over so great a part of this territory has slowed up the demand for all oils usable as furnace oils and especially for distillates. Of course the 4½-cent price was due to the exceptional demand created by the long period of severe weather and naturally distillates would be the first to feel the decrease being used for the most part only by domestic oil burners in the smaller type of equipment. During the sunny, warm days of the past two weeks the oil burner has been off duty for several hours in the middle of the day in many small homes but those installed in larger buildings have been used more continuously. Gas and fuel oils are wanted for other uses besides domestic burner fuel but this is the only real use made of distillates by consumers. There have even been occasional offerings of cars on the tracks by distributors who did not need the material. This is a very marked change from conditions prevailing during the first two months of the year but it is due in part to the desire of every distributor to have as little oil in his tanks as possible at the close of the season. Most of the refiners feel the same way about stocks and as the result there were several who made lower prices. The movement of distillate was not dead by any means but it was less active and while we may have some spurts of better demand there will be a gradual dwindling of consumption. The price situation is less clear. Some seasons there has been a very strong market developed late in the spring following some warmer weather. Two or three years ago there was a late spring and distillate was almost unobtainable. This is a chance that cannot be reckoned with. Some good 38-40 straw distillate was purchasable at 4 to 4¼ cents by the jobbing trade last week and 37-39 distillate at a quarter less.

Gas Oil Scarce

Gas oil continues scarce and the price generally firm although some material is being offered at 3⅛ cents by a large refiner to the marketers and large buyers. This price was for either zero or straightrun gas oil for prompt shipment or over the month. These refiners have been out of the market for several weeks and their re-entry was rather a surprise but being obliged to run much gasoline for their own and their customers' distribution, they have begun to accumulate some of the heavier products. Otherwise the gas oil markets were very firm. Straightrun gas oil has surprised many by its strength. One sale was made last week of 100 cars of straightrun oil for delivery over 90 days at 3¼ cents and this has been the bottom price. Refiners cracked their straightrun pretty closely in the fall and the demand has been very good all winter. The gas companies have used more than they commonly do and a good deal has been used to build up the stocks of the zero oils. Now that the cracking season is close at hand, supplies of gas oil suitable for such use are light with most refiners. The zero oils are in good demand still but the time when they will be most wanted is drawing to a close and they occupy something the same position as do distillates except that the demand will continue from industrial users even after the use for domestic burner fuel has passed for the season.

Fuel Oil

The high gravity zero fuels are still very scarce here although an occasional car is offered and some of the marketers found that it was occasionally possible to pick up cars in the yards which had been shipped to some distributor and were not wanted, usually because of delayed shipment. They were not priced much if any lower than the last market which was from $1.20 to $1.25 and even higher, but they were to be found. It simply shows that the demand has been lessened so greatly by the two weeks of more seasonable weather that some of the distributors have all of the oil of this description they can or will take in. There will be quite a good demand for these grades of oil for some time yet but the peak of consumption has been passed. There was all of last week a very good inquiry and much business for the 24-26 gravity zero fuel oil and even for the higher cold test product. Some of the best sources of supply are so well sold up they decline to quote and state it will be the middle of the month before they will be in shape to even name a price for future shipments.

While there are large stocks of fuel oil in the various refining centers, according to direct reports made to various dealers and refiners here, there is only a moderate supply of the better kinds, that is with a low viscosity, a moderate cold test and good, clean oil which is wanted by many users. The price of the heavy fuel oils from West Texas crude with a high

(Continued on Page 137)

Break in Eastern Tank Car Market

Lack of Demand for Gasoline and Price-Cutting Competition From Small Dealers Responsible for Further Decline

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Mar. 11.—Another break in the tank car gasoline market, with indications of possible further declines, featured the East Coast refinery products market this week. Lack of demand, coupled with the necessity of meeting price cutting competition from small operators, was the cause of the latest decline, as was the case in the previous reduction a fortnight or so ago. The market is now quoted at 9¼ cents a gallon for U. S. Motor, but this price is by no means stable, and is being freely shaded by a quarter cent per gallon in many quarters of the market. Volume of business continues restricted by unfavorable weather conditions which have prevailed during the greater part of the week.

Changes of outstanding importance were lacking in the remainder of the market for refined products this week. Buying interest in kerosene has subsided somewhat, and the market is showing signs of weakness under more pronounced selling pressure on both prime and water white. Lubs are still rather a routine affair, with the market holding fairly steady. Gas oil is slowing down somewhat, but fuel and Diesel oils continue to come in for a fair movement.

Many operators in the local market are inclined to attribute the troubles of the gasoline and kerosene markets to the export situation. For the past six weeks, it is pointed out, foreign buying of both bulk and cased stocks, more particularly the former, has been very much below par, and this has naturally resulted in the accumulation of rather heavy surplus stocks at refinery points, with refiners confronted with the necessity of moving into domestic consuming channels products which would normally be shipped abroad.

The Export Outlook

The stalemate in the export market for gasoline was apparently broken this week, with the reported sale of two cargoes of 60-62 gasoline, aggregating 18,000 tons, out of the Gulf. The sale was reported made at 9⅛ cents a gallon, five-eighths under usual quotation. According to reports here, the gasoline had been accumulated by an independent operator, and was sold for shipment to London. The large companies have not modified their price views on either gasoline or kerosene for export thus far. The present price basis on gasoline and kerosene for shipment abroad has now been in effect for more than a month, with a paucity of export sales. In fact, up to this week, since January, only one cargo has been reported confirmed for shipment abroad to a buyer not affiliated in some manner with an American producing company. The buyer in question succeeded in purchasing bulk Navy gasoline at 8 cents per gallon at the Gulf, a half cent under the established level.

While some operators are inclined to view the present dull market as a test of strength between American export sellers and European buyers, there is another and simpler explanation for the prolonged slackness in export sales. This is the exceptionally severe winter which Europe has been undergoing. As a result of this unusually cold and stormy weather, which has witnessed blizzards in sections of Europe which have been free from such extreme cold for more than a hundred years past, consumption abroad is from a month to six weeks behind on gasoline. This period, incidentally, coincides almost exactly with the duration of the inactive market for export gasoline here and at the Gulf.

With kerosene, however, it is a different question. Extreme cold in Europe would normally be reflected by an increased demand for American kerosene. This year, however, the situation is abnormal. In the first place, European marketers are obtaining unusually large consignments of Russian kerosene at prices under those quoted for the American product. This, in conjunction with the fact that the Russian product is preferred by many buyers in Europe, even when priced on a par with the American product, explains much. Another factor is seen in the fact that transport has broken down in many sections of Europe, and that much kerosene consumption is being lost because of the inability of importers in the various countries to move their imports of burning oil to consuming centers.

One local exporter, normally an important factor in the export market, declared today that France has not been in the market for a cargo of either gasoline or kerosene for 45 days past. In normal years, that country is a heavy buyer during February and March, stocking up for summer consumption at a time when prices in United States markets are at their low point for the year. "When buying does commence again," said this factor, "you can look for possibly as many as 15 cargoes being placed within the week of trading."

Tank Wagon Gasoline

With consumption of gasoline still lagging, because of the unfavorable weather conditions prevailing throughout the greater part of the East, there has been little change in the tank wagon situation. Prices quoted by the leading marketing interests hold unchanged throughout the area. This week's reduction in tank car gasoline has not been sufficient to break the tank wagon basis, and competition is not keen enough to justify any revision, in the opinion of leading interests. A further cut in the tank wagon price would make the tank car market still less attractive to buyers, and would probably cause the great majority of jobbers to withdraw almost entirely from the spot market for U. S. Motor and fall back on their marginal contracts.

Independent distributors are still underselling the larger marketers by 2 cents per gallon at retail, on the average, with some brands of "white" gasoline quoted at filling stations as low as 16 and 17 cents a gallon. The market is expected to tighten up and the price range narrow down within the next several weeks, when it is expected that weather conditions will show a change for the better and consumption will pick up.

It is reported that several of the large interests in East Coast territory are surveying the filling station field with the idea of acquiring small chains of independently operated stations. This move, it is believed, will be part of the strategy of the large companies in holding their distribution and providing for increased outlets for motor fuel during the coming motoring season. Selling competition among the large interests will be more general throughout the East than ever before, and building up of company owned retail filling stations is believed to be part of the plan of campaign on the part of several of the large factors. This development, it is felt, will be more general in the New England States than in other sections of the territory, as much of the increased competition will center in the North Atlantic section. Shell Eastern in particular is reported to be contemplating extension of its service station chain, while Pan American is credited with the same plan as part of its program for marketing the large gasoline production of its new refinery which has just been placed in operation at Aruba, Dutch West Indies.

Tank Car Gasoline

A qparter cent reduction bringing the market down to 9¼ cents, bulk, at principal East Coast refinery terminals, featured the market this week. The decline had been foreshadowed by more or less general price cutting during the past fortnight ,and there is a general feeling in marketing circles that the 9¼-cent quotation will not stand long. Principal marketing companies are adhering to the new level of prices, but it is no secret that a large volume of spot trading is being done at 9 cents, and reports of shading of even the latter figure are heard.

The jobbing trade in the eastern area continues rather bearish on gasoline, and salesmen for the large companies are continually beset with reports of offerings to the jobbing trade at prices under those quoted by their own companies. Naturally, under these conditions, jobbers are not stocking in advance of requirements. In fact, many small distributors are permitting their stocks to run close to the danger point in their desire to protect themselves against the possibility of having a large supply on hand in the event of another price decline.

A week of rain and more or less cold and unsettled weather has done nothing to improve motor fuel consumption in East Coast territory, and market interests are hoping for a "break" in this respect in the near future. Sales totals have fallen off considerable in some quarters of the area since the middle of February, due to the generally poor motoring conditions throughout the territory.

California U. S. Motor at 9¼ cents a gallon is getting the call over eastern motor fuel in many instances, owing to the antiknock qualities credited to the Pacific Coast product, and the general desire of distributors to market motor fuel of this character during the cold weather season. Fairly heavy arrivals of the California product are reported at principal East Coast market centers for the week and several large cargoes are now afloat for the East. While California refiners have not changed their gasoline quotations in the open market, they are meeting the competition afforded by the lower basis on U. S. Motor in the East, and will continue important factors in the motor fuel situation here. However, much of the current movement East of the Pacific Coast gasoline is in the hands of the large integrated companies with California connections.

Lubs

Cylinder oils have come in for slightly better buying this week and the market has stiffened a little. Spot 600 steam refined is firm at 30 cents a gallon, and has moved in a fair way at this figure to the domestic trade. On 600 Pennsylvania flash, sellers are steady at 38 to 39 cents a gallon, with 630 flash unchanged at 43 to 44 cents. Bright stock is steady and unchanged. While some irregularity still exists on the quotations made by Pennsylvania lub oil refiners, the range appears to have narrowed down considerably, and sellers in the field are not more than a quarter to a half cent apart in their price views. A few weeks ago, prices varied as much as 1½ to 2 cents per gallon on the same grade.

Red and pale oils have both continued rather sluggish this week, in so far as volume is concerned, although quotations have been well maintained. A little more inquiry has developed, however, and refiners are looking for a better movement during the spring season.

Sales of lubs for export have again eased off. Current reports are that the slackness is not so much a question of price as of curtailed consumption in Europe, where extreme cold weather during recent weeks has virtually brought motoring to a standstill in many countries.

Large marketers are getting their price lists on package lubs out to the trade. The price schedules, in practically all instances, show advances over those put out for the spring trade last year, the increases being due to the upward movement in quotations at refineries during the closing quarter of 1928, which has tended to make for higher production costs in the compounding of top quality motor oils.

Petrolatum

New business has eased off a little in this branch of the market, but with sellers well booked up and behind in their deliveries in many instances, prices have not suffered from the lack of demand. The only revision reported is a quarter cent decline on snow white, which can be bought in a car lot way at 8¼ cents per pound. On lily white, sellers are still quoting 7½ cents, although this quotation is one-eighth to one-quarter above buyers price views. Dark green has been moving in a fair way at 2 cents per pound, with amber grades quiet and unchanged. Consuming manufacturers in the pharmaceutical trade appear to be covered on the bulk of their requirements for the spring trade, although sellers expect a revival in demand from this class of trade within the next six weeks, when manufacturers of special salves and ointments normally begin to stock for their summer remedy requirements. Inquiry for petrolatum from industrial consumers is also expected to pick up within the next month or so, stocks held by these interests being reported as small.

Fuel Oil

Bunker "C" has continued to move in steady volume this week and is unchanged at $1.05 per barrel, bulk, at terminals, and $1.10 per barrel, barged alongside within the harbor limits. Refiners report that the large steamship companies are drawing heavily against resting contracts, and the volume of spot business is also holding up well.

Fuel oil at the Gulf has stiffened considerably. According to current advices, the market at that point is now held at 75 cents per barrel. A fortnight ago, offerings were reported, in cargo lots, as low as 67 cents per barrel, with the large sellers willing to book firm at about 70 cents. Thus far, however, the strengthening at the Gulf has not been reflected in the situation at East Coast points, and no immediate change in prices is anticipated. In fact, it is rather duobtful that the industry here would be able to successfully advance fuel oil prices under present market conditions. While it is true that the statistical position of the market has shown some improvement since the turn of the year, there is still overproduction, and holdings are by no means past the danger point. The outlook is a little better, operators believe, it being thought that real definite progress toward curtailment of crude output is in sight for the near future.

Diesel Oil

While a little price shading has been reported in one or two quarters, the open market quotation for Diesel oil continues unchanged at $2 per barrel, in bulk, at refinery terminals. Some sales are reported to have gone through at

(Continued on Page 137)

Practical Suggestions in Refining

By W. T. Ziegenhain

Kansas Refineries Secure High Yield From Sedgwick Crude

With the production in the new Sedgwick County, Kansas, Field, known as the Valley Center Pool, increasing weekly until now more than 12,000 bbls. of high gravity crude is produced daily, Kansas refiners are assured of a dependable and substantial source of refinable crude to augment the gradually decreasing output from the other Kansas fields. Thus far, several plants have run separate batches of the oil and from a yield standpoint the crude is very comparable with Seminole, Oklahoma, crude. It has all of the characteristics of a typical Mid-Continent crude, but above the average in gasoline yield. Tests on the crude itself are tabulated below.

Gravity	42.7 A.P.I.
Sulphur	.17 per cent
B.s.	Trace
Color	Dark green
Pour point	Below zero

These tests were made on a sample of crude taken as a composite of production from five scattered wells, the crude being taken from the pipe line system running the oil from the field. A laboratory distillation of this sample showed 43.0 per cent of a 402 endpoint gasoline could be made along with an 8 per cent yield of kerosene of a good burning quality. A lub distillate cut of 30.7 gravity and representing 19.5 per cent of the crude had a pour point of 60 degrees Fahrenheit indicating a fair wax yield. The sample was not processed to determine the amount of wax nor the quality of the wax. The lubricating oils were of good quality and it was indicated that a yield of from 5 to 6 per cent 200 viscosity neutral lubricating oil could be made. The fuel oil made had a gravity of 17.9 and a pour test of 55 degrees Fahrenheit which while marketable, would be a little more acceptable if blended with a cracked fuel to lower the pour point.

During the distillation of the sample very little hydrogen sulphide was given off but after 15 per cent of the crude was distilled off the stream turned from neutral to slightly acidic. The presence of chlorides in the crude in small amounts accounted for the acidity of the stream, the total contents, being determined as sodium chloride, amounting to 2.04 grains per gallon.

Some trouble is being witnessed by refiners who are running this oil at the present time in treating the gasoline. The ordinary doctor treatment does not sweeten it readily. The objections have not rendreed the crude undesirable but the problem of treating apparently is a repetition of the problem that generally presents itself when a new field is brought in and again emphasizes the fact that no set treating routine can be adopted for all crudes and a refiner has to first work out a method of treating the products from the individual crudes and with this somewhat as a guide, experiment with representative mixtures of these crudes blended in proportion to the amounts run from the respective fields.

Following are the tests on the products made from the sample of Sedgwick crude investigated:

Gasoline

Yield	43.0%
Gravity	61.3
Distillation—	
I.P.	103°F.
10%	155
20%	182
30%	207
40%	229
50%	250
60%	274
70%	300
80%	323
90%	353
E.P.	402

The gasoline was also tested for its antiknock value and was found to compare very closely with that of the average Mid-Continent gasoline and with the average Mid-Continent gasoline as a basis has a benzol equivalent of 0.

Kerosene yield, 8.0 per cent; gravity, 42.7; T. viscosity, 375; I.P. 367 degrees Fahrenheit; endpoint, 504 degrees Fahrenheit; burning good.

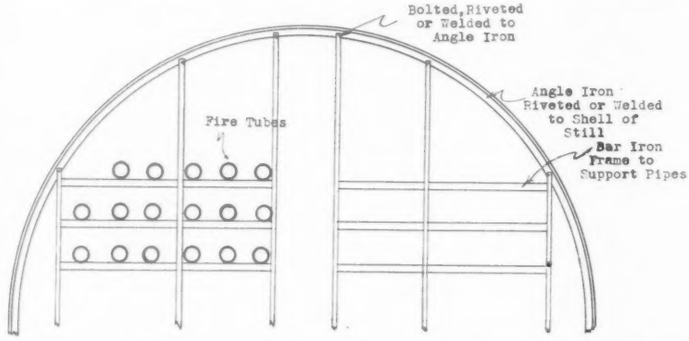
Gas oil, yield 12.5 per cent; gravity, 35.7; flash, 230 degrees Fahrenheit; pour point, 15 degrees Fahrenheit.

Lubricating distillate, yield 19.5 per cent; gravity, 30.5; flash, 265 degrees Fahrenheit; pour point, 60 degrees Fahrenheit; viscosity at 100 degrees Fahrenheit, 60.

Fuel oil, yield 15.5 per cent; gravity, 17.9; flash, 455 degrees Fahrenheit; viscosity Furol at 122 degrees Fahrenheit, 174; B.s., 3 per cent.

TUBE SUPPORTS RELIEVE SHELL OF WEIGHT AND ARE INEXPENSIVE

F. A. Deering, superintendent of the Kanotex Refining Co.'s plant at Arkansas City, Kans., has worked out a simple, economical and very practical way of converting his shell stills into fire tube stills. The features of particular interest are the methods used in supporting the tubes and holding them in the flue sheet. The diagram below gives the detail of the method used in supporting the tubes and could be readily adopted in any shell still. No dimensions could be set due to the difference in the length of the various stills, the difference in the number and weight of the tubes, etc., but the same principle may be used.


Bolted, Riveted or Welded to Angle Iron
Angle Iron Riveted or Welded to Shell of Still
Fire Tubes
Bar Iron Frame to Support Pipes

Each tube is welded into the ends of the still both inside and out, making a secure and strong joint. But whereas there may be say 100 4-inch 20-foot tubes so welded in the still ends, a great pull would be exerted on the ends as the tubes tended to deflect and the additional weight on the ends could be better supported by the still setting, along its sides.

With this in mind a 4-inch by 6-inch angle iron, with the 6-inch face free was bent round so as to fit the inside shell of the still and was then welded to the still shell. The distance apart these need to be placed varies with the weight of the tubes, the desirability of distributing the weight on the still setting, etc., but one every 5 feet is not too close. The 6-inch face of the angle iron serves to withstand the strain tending to pull the top of the still in with the weight of the tubes. The rods suspended from the angle iron may be fastened by bolts or rivets or may be welded on to the angle iron as desired, although welding would be generally used. These rods are spaced across the face of the still to permit a narrow passage way down through the center which is free of tubes to permit men to reach and repair or remove the tubes on either side. The horizontal supporting bars are welded to the vertically suspended bars and the dimensions of these will of course vary with the weight of the tubes to be supported.

REFINERY EMPLOYMENT

Compared to a year ago, the number of employes in refining showed an increase of 2.9 per cent and the amount of the refinery payrolls were 1.3 per cent higher during January of this year, according to the United States Department of Commerce. This represents a slight decrease compared to last December. The December index of employment was 86.7 and the January index was 86.1. Considering the great amount of construction work going on in the refineries all over the country, the figures for the months following this report will probably show a rapid recovery in the number of men employed, this number having fallen off materially during 1927 and was only partly recovered during 1928.

ETHYL GASOLINE DOES NOT ADD TO CARBON MONOXIDE

Tetraethyl lead does not increase the carbon monoxide content of the exhaust automobile gases when used in ordinary amounts and under normal operating conditions, according to the United States Department of Commerce after completing a series of tests in conjunction with the Ethyl Gasoline Corp. When the engines were operated at a fixed adjustment there was no significant change found in the carbon monoxide content, nor in the content of any other constituent of the exhaust gas, upon changing the fuel supply of the engines from the ordinary refinery gasoline and the same gasoline after various amounts of the ethyl fluid had been added.

This was true of both the tests in which a detonation was evident and those in which no detonation was audible but when the spark was retarded to eliminate knocking when burning the ordinary gasoline of low antiknock value the carbon monoxide content of the gas increased 5 to 7 per cent compared to that produced by the ethyl gasoline operating at the higher spark position.

This indicates that where a difference does occur the use of the ethyl gasoline lies on the safe side. This factor is becoming more important to refiners as traffic becomes more congested and underground tunnels come into more general use to relieve this congestion. The complete report may be secured from the Department of Commerce by addressing the Bureau of Mines at Washington, D. C., and calling for Serial No. 2,908.

Recent Patents

USE REFRACTORY DISTILLATE

1,703,100. Process for Converting Hydrocarbon Oils. Carbon P. Dubbs, Wilmette, Ill., assignor to Universal Oil Products Co., Chicago, Ill., a corporation of South Dakota. Filed October 31, 1921. Serial No. 511,760. 2 Claims. (Cl. 196—48.)

1. A process for converting hydrocarbon oil, consisting in subjecting the oil to cracking conditions of temperature and pressure in a heating zone, in passing the evolved vapors to a dephlegmating zone, in dephlegmating the vapors by introducing into the dephlegmating zone in physical contact with the vapors a refractory distillate which will substantially completely vaporize but will not undergo any substantial cracking reaction at the temperature maintained in the dephlegmating zone, to flow through a substantial portion of the dephlegmating zone, in augmenting the dephlegmation of the vapors by passing a less refractory oil in a closed conduit through the dephlegmating zone, and in charging such less refractory oil to said heating zone.

TREAT WITH M_nO AND HCl

1,703,158. Method of Treating Oils for Distillation. James M. McClave, Denver, Colo., assignor to the Conserro Co., Denver, Colo., a corporation of Colorado. Filed December 8, 1925. Serial No. 74,169. 3 Claims. (Cl. 196—35.)

1. The process of treating oils consisting in introducing into an oil before and at the time of distillation, oxide of manganese and hydrochloric acid.

CRACK IN PRESENCE OF FULLER'S EARTH

1,703,529. Cracking of Heavier Hydrocarbon Oils. Eugene C. Herthel and Harry L. Pelzer, Chicago, Ill., assignors to Sinclair Refining Co., Chicago, Ill., a corporation of Maine. Filed May 28, 1925. Serial No. 33,390. 10 Claims. (Cl. 196—69.)

1. The improvement in the cracking of hydrocarbon oils by distilling a charge of the oil under pressure at a cracking temperature in a circulatory pressure still in which the oil is heated to a cracking temperature in a tubular heater, which comprises maintaining in said still charge a body of fuller's earth on a support adapted to permit free passage of oil and extending entirely across the charge of oil in the pressure still, withdrawing oil from beneath said support.

CRACK EMULSIFIED OIL

1,703,103. Process for Cracking Emulsified Petroleum Oil. Gustav Egloff and Harry P. Benner, Chicago, Ill., assignors to Universal Oil Products Co., Chicago, Ill., a corporation of South Dakota. Filed September 1, 1920, Serial No. 407,411. Renewed July 2, 1928. 1 Claim. (Cl. 196—5.)

A process of treating emulsified hydrocarbon oil, consisting in heating the oil to a conversion temperature, in passing evolved vapors to a dephlegmator, in subjecting the reflux condensate to further treatment at a temperature above the boiling point of water, in subjecting the dephlegmated vapors to an initial condensing action at a temperature above the boiling point of water, in uniting the water vapors and light hydrocarbon vapors, separated from the reflux condensate and from the vapors undergoing such initial condensation and in thereafter subjecting such comingled water vapors and light hydrocarbon vapors to a final condensing action.

BREAK IN EASTERN TANK CAR MARKET

(Continued from Page 135)

about $1.89 a barrel in the local market. Inquiry from marine interests continues heavy, with a large part of the business along contract lines.

Possibilities of Diesel oil in aviation are claiming more interest in refinery circles here. Following announcement that Packard was about to go into production of a Diesel airplane engine on a commercial scale, press reports indicate that a large Maryland company has also perfected an aviation motor of similar type, calling for Diesel oil as a fuel. Future developments along these lines will be watched with close interest by the oil industry.

Gas Oil

Sales have fallen away somewhat, both in the spot market and in contract withdrawals. While the leading refiner continues to hold the market at 5¼ cents, at refineries, other sellers are still a quarter to a half cent under this figure.

The large artificial gas companies are still in the market in a large way, although it is believed that the end of peak consumption in this branch of the trade is in sight. Continued cold weather, however, will make for continued heavy demands from the case companies.

Refiners are now beginning to indulge in some speculation as to the probable market for straightrun gas oil for cracking purposes during the coming summer months. Last year, it will be recalled, East Coast refiners accumulated rather large reserve holdings of cracking stocks. From present indications, however, not so much attention will be paid to piling up gas oil reserves this spring, in as much as the outlook favors a plentiful supply of cheap gasoline, with more than adequate production of low priced crude oil.

Kerosene

Buying has fallen off somewhat, and the market is less firm. Leading refiners continue to quote water white in tank car lots at 8½ cents a gallon, at Bayonne, but supplies are available in a liberal way at a half cent under this figure. The jobbing trade in the East Coast area is still buying in a fair way, but there are definite indications that peak consumption for the season is about at an end, and sellers in some instances are exerting a little more selling pressure to move stocks.

Tank wagon kerosene is still quoted at 15 cents per gallon in New York and New England territory. While demand has eased off slightly in this division of the market, consumption is still heavy, and is close to record high figures with many sellers. Should weather conditions continue as at present, refiners anticipate heavy consumption of kerosene right on through the balance of March and possibly during the first half of April. Notwithstanding the favorable position of domestic markets, from the production standpoint, however, some weakness is apparent, this being traced to the falling off in export volume here and at the Gulf during the past several weeks.

Paraffin Wax

Buyers are showing a little more interest in offerings of fully refined, but buying has not yet shown any real pickup. Sellers have been getting a little more inquiry, however, and expect that spring demand will get under way shortly. Refiners are still showing rather firm price views, although buyers are pressing for concessions, and it is not difficult to shade quoted prices by an eighth in some instances.

Crude scale has been rather irregular in both domestic and export channels. The market is still somewhat unsettled, with buyers underbidding the market and endeavoring to bring out stocks at material concessions. Stocks are by no means top heavy, however, and selling pressure is not general.

Export Markets

Aside from the reported sale of two cargoes of 60-62 at the Gulf, slack trading in export gasoline continues, with most of the demand for small lots of the cased product. Export inquiry for cargo lots was dull. The market is quoted as follows:

	North Atlantic	Gulf
Navy, cases	26.40	...
Navy, bulk	9½	8½
60-62 390 endpoint	10¼	9¾
64-66 375 endpoint	11	10
66-68	14	13

Cased kerosene demand was holding up well, with the market steady. Bulk was moving principally in small lots. Prices are:

	North Atlantic	Gulf
Standard white, cases	17.65	....
Standard white, bulk	7¾	6¾
Water white, cases	18.90	....
Water white, bulk	8¾	7¾

Lubs have moved only in limited volume this week, with the market quotably unchanged.

Sales of paraffin wax in export channels have also been of restricted volume, but no further price changes have materialized.

Foreign demand for other refined products has been rather routine throughout the week, with no changes reported.

Petroleum Exports

The following tabie shows principal exports of petroleum and refined petroleum products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Mar. 2	Feb. 23	Feb. 16
Gasoline	435,000	713,650	608,000
Naphtha	840,000	3,534,500	1,498,800
Kerosene	215,000	2,321,900	266,500
Fuel oil	84,800	20,000	2,000
Lubricating oil	1,500,700	2,120,200	1,096,700
Petroleum, ref.	783,000	1,680,100	1,950,000
	Pounds		
Petrolatum			
Paraffin wax	2,914,800	2,561,800	663,700
Refined			4,700
Scale	122,300	1,964,200	356,000
Lub. grease	1,405,000	1,556,400	1,283,900

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended March 2 totaled 863,000 bbls., a daily average of 123,285 bbls., against 210,000 bbls., a daily average of 30,000 bbls., for the week ended February 23. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports:	
Baltimore	252,000
New York	363,000
Philadelphia	95,000
Others	78,000
Total	788,000
Daily average	112,571
At Gulf Coast ports:	
Total	75,000
Daily average	10,714
At Atlantic and Gulf Coast ports:	
Total	863,000
Daily average	123,285
Distribution of total California oil receipts is as follows:	
Crude	175,000
Gasoline	517,000
Kerosene	75,000
Gas oil	96,000
Total	863,000

Imports

Imports of crude and refined oils at the principal United States ports for the week ended March 2 totaled 1,519,000 bbls., a daily average of 217,000 bbls., compared with 1,508,000 bbls., a daily average of 215,428 bbls. for the week ended February 23. Details follow:

(Barrels of 42 gallons)

At Atlantic Coast ports:	
Baltimore	70,000
Boston	72,000
New York	818,000
Philadelphia	271,000
Total	1,231,000
Daily average	175,857
At Gulf Coast ports:	
New Orleans and Baton Rouge	265,000
Port Arthur and Sabine district	23,000
Total	288,000
Daily average	41,143
At all United States ports:	
Total	1,519,000
Daily average	217,000

Included in the week's imports of crude oil at New York for the week were the following shipments:

To Tide Water Oil Co., 95,500 bbls. on the Axtell J. Byles from Las Piedras.

To Gulf Refining Co., 63,000 bbls. on the British General from Las Piedras, 115,500 bbls. on the Gulfbird from Las Piedras, 115,500 bbls. on the Tanuahua from Las Piedras, and 95,000 bbls. on the Agwihavre from Los Piedras.

To Standard Oil Co. of New Jersey, 117,000 bbls. on the H. H. Rogers from Mamomal, 71,000 bbls. on the Josiah Macy from Mamomal, 100,000 bbls. on the Gedania from Mamomal, and 117,000 bbls. on the Vancolite from Mamomal.

To Anglo-Mexican Petroleum Co., 58,700 bbls. on the San Leon from Aruba.

To Pan American Petroleum & Transport Co., 86,000 bbls. on the F. H. Wickett from Aruba, 55,300 bbls. on the Mantilla from Aruba, and 63,800 bbls. on the C. A. Canfield from Aruba.

CHICAGO MARKET QUIET; PRICES REMAIN FIRM

(Continued from Page 134)

sulphur content is just a little less firm, but the demand for this grade may come later as the industries are rapidly increasing their activities and according to all present prospects there will be a good industrial demand right through the spring season. Some stocks of very low gravity oils are also likely to come on the market with warm weather but they should not affect the price of the higher gravities except as they displace so much better oil.

Lubs Steady

Lubricating oils are moving steadily and more rapidly. Both motor and industrial lubricants are in good demand. Salesmen who are in the various states surrounding this city are sending in good orders from both the jobbing trade and local industrial plants. Prices for the compounded oils are firm. There has been no change in the prices on leading refinery lub stocks. Bright stocks and steam refined are steady while the neutrals are still easy.

Tank Wagon Situation

There have been no changes of importance in the tank wagon or station prices. Dealers are trying to hold prices in most localities and even the price cutters seem quiet. The stronger tone to the refinery markets and the difficulty that known price cutters have to secure supplies of good material are deterring the habitual price cutter from doing his worst but there is still price cutting going on at this place and that over the territory. Some expect to see a higher tank wagon market but right now the only price that seems to have any prospect for an advance is the kerosene tank wagon price and even this is rather hoped for than expected. The local movement for higher prices for furnace oils struck a snag when the larger distributors said it was too late in the season. As it happens there has been a much smaller demand ever since the proposed change was announced. There are several new companies who are preparing to enter the territory with extensive distribution of their own. The Phillips Petroleum Co. has perhaps the most ambitious with its announced 300 bulk stations in Iowa. The Cosden company will have a considerable number of stations at which several thousand globes will inform the motorists Cosden gasoline is for sale. The Sinclair Refining Co. has an ambitious program and other large interests are not letting the motoring public lack for opportunities to purchase its gasoline and lubricating oils. It looks like a merry season, according to the old adage, "The more the merrier."

STRESS INDIVIDUAL'S PART IN SAFETY WORK

(Continued from Page 130)

is one way to teach accident thinking. I recommend that employers allow their employes, in departmental groups, one day a year to visit the ward of a hospital, and when they see the broken arms, the broken legs, the disfigured bodies, the misery and the helpless suffering, they will experience through sight and feeling the emotions of fear, faith, hope and charity, and most assuredly they will make the effort to prevent accidents, to themselves and their fellow workers.

The reduction of industrial accidents in recent years is an outstanding achievement. In connection with the elimination of hazards by installation of mechanical safeguards, the need of safety supervisors was recognized and then also was recognized the individual responsibility of the employes. The same lack of thought that caused one to hurt himself causes him also to hurt the machinery. The employer then looks upon an accident as affecting human life and the life of mechanical equipment. His insurance is based upon humanitarian necessity and also as a business investment on the part of good management, and where his insurance supposedly protects his machinery and his employe, the facts are that he pays the cost of injury to either one. Now that advancement has been made to protect mechanical equipment, the protection of the employe is essential, and where statistics show that 98 per cent of so-called accidents are due to the individual's lack of thought, compulsory measures will be called upon to make him think.

Indications at the present time are that, drastic medical examinations have to be passed, age limits are set, salaries are forfeited, and the individual's number of accidents are checked against him for future reference regarding his possible promotion or continuance of service, furthermore the law sets a stipulated compensation for each and every injury. The time is at hand when the individual responsibility of accidents must be recognized and lived up to, and the greatest aid to this is co-operation in every form in every instance, particularly when the effort is made by adhering to a well-laid plan of accident prevention.

EXPLAIN OLD METHOD OF PRODUCING BLAU GASES

(Continued from Page 130)

the injection of a water spray. In this way hydrocarbons of the benzene type are segregated, while the residuary gaseous materials are compressed to 100 atmospheres. Under this latter pressure the gas is liquefied or loses a part of its very low-boiling compounds. It is stated that 100 pounds of gas oil will produce from 30 to 40 pounds of Blau gas, 5 to 6 pounds of benzene, 50 to 55 pounds of tar and 5 to 6 pounds of noncondensible gases.

"Blau gas looks like water, has a specific gravity of 0.51, and boils at 60 degrees Centigrade. When used it is vaporized in a boiler at 6 atmospheres pressure and employed in the form of the resulting vapor. Its heat content is 14,800 large calories per kilogram (26,640 B.t.u. per pound). In air mixtures it explodes within the limits of 4 per cent gas to 96 per cent air up to 8 per cent gas to 92 per cent air, or substantially those under which gasoline-air mixtures become explosive.

"Apparently the main advantage in the carrying of Blau gas on airships is the fact that it simplifies the matter of compensating for loss of weight, which is a serious matter when gasoline is used, and possibly makes the handling of an airplane easier. On the other hand, it must be very much more expensive than gasoline, and probably is not as efficient."

ENGINEERING BUILDING DONATED TO UNIVERSITY

Waite Phillips of Tulsa, chairman of the board of directors of the Independent Oil & Gas Co., has donated $150,000 for the erection of a petroleum engineering building at the University of Tulsa. Plans of the building have been approved and it is expected they will be in the hands of contractors early in April and every effort will be exerted to make sufficient progress towards completion as to permit of the use of the building for classes late in the fall.

Mr. Phillips made the donation with the understanding that the course of engineering would embrace the production, refining and distribution of petroleum, a course which will enable students to engage in any of the various branches of the industry. The school of petroleum engineering has already been established and the first class will graduate in 1932.

Another Tulsa oil man, A. G. Oliphant, recently contributed a petroleum library to the University, which could not be duplicated for less than $25,000.

Brief Items for Petroleum Refiners

Merge New Orleans Holdings With Shell Petroleum Corp.

The New Orleans Refining Co., Inc., of New Orleans is now in the process of liquidation for the purpose of consolidating the properties of the company with those of the Sheli Petroleum Corp. Both the New Orleans company and the Shell corporation are members of the Royal Dutch-Shell group, the latter being a subsidiary of the Shell-Union Oil Co., the holding company in United States.

The New Orleans company in the past has operated largely independent of the other Shell companies in United States. The company has a 15,000-bbl. refinery near New Orleans with large cracking capacity. The company through allied export interests has had a large foreign outlet for its products. In addition to the output of its own refinery the company has purchased substantial quantities of export gasoline and kerosene from other Gulf Coast and Mid-Continent refineries.

The action in merging the New Orleans company with the Shell Petroleum Corp. is interpreted in trade circles as another step toward the consolidation of the Dutch-Shell interests in United

(Continued on Page 149)

NEW PLANTS CONSIDERED IN NEW MICHIGAN FIELD

An advance of 10 cents in the posted price of Dundee crude oil and a proposal to build a refinery provided the owners were guaranteed sufficient crude oil were the definite developments in the Michigan oil situation during the past week. The Standard Oil Co. of Indiana advanced the posted price from 50 to 60 cents per barrel on March 11 and agreed to take 20 per cent of the Dundee production instead of 10 per cent.

The Indiana Standard precipitated the interest in new outlets for the Dundee crude oil on February 7 when it reduced the price to 50 cents per barrel and cut its pipe line runs to 10 per cent of the Dundee production. Previously the company had been taking all the crude oil and paying prices based on the Mid-Continent gravity schedule. The difficulty experienced in refining the crude oil was given in explanation of the action on February 7.

Since that time crude oil producers have been endeavoring to interest refinery owners in the construction of a new refinery or have other companies purchase the crude and transport it to their refineries. The Shell Petroleum Corp. is

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BUYS REFINERY SITE NEAR SAN ANTONIO

SAN ANTONIO, Texas, Mar. 11.—The Indiana Oil & Gas Co., which recently purchased a controling interest in the Grayburg Oil Co. of this city, has bought a 280-acre tract south of this city as a site for a new refinery. The refinery, according to Silas M. Newton, president of the company, will not be built immediately. It will probably be completed in 1930.

The Grayburg company for several years has operated a refinery in this city. During the past two years efforts have been made by the city to have the refinery removed due to the fact that it is near a residential section. This refinery, when the new plant is built, will be dismantled. The Indiana company, which is a producer of crude oil, expects to expand both its marketing and refining facilities.

RE-ELECT RAGLE HEAD OF MICHIGAN ASSOCIATION

DETROIT, Mich., March 8.—H. H. Ragle of Jackson, Mich., was re-elected president of the Michigan Independent Oil Men's Association at the two-day annual meeting which closed here today. Mr. Ragle has served as the active executive head of the company during the past year and will continue in that capacity during 1929.

A. D. Dubuisson, South Haven; Arthur McKay, Flint.; L. S. Grimes, Grand Rapids; C. Rennie, Travers City, and H. A. Bogert, Saginaw, were elected vice presidents. Thomas Vankuren, Detroit; C. A.Schiersen, Albion, and L. P. Spaulding, Lansing, were elected to the board of directors. Walter Garvey was re-elected field secretary.

The two-day meeting which was held at the Hotel Statler was one of the most interesting in the history of the association with approximately 200 in attendance. H. B. Earhart, president of the White Star Refining Co. of Detroit explained the Code of Ethics to govern the marketing of petroleum products. The code has been approved by the oil industry and now awaits the final approval of the Federal Trade Commission.

Several addresses were made by speakers outside the oil industry on the general subject of salesmanship. A. P. Haake, managing director of the Furniture Manufacturers Association, who was scheduled to make one of the principal addresses of the meeting, was unable to be present due to illness. He sent a message to the association as follows: "The time of the lone wolf in business is over, it is the pack that wins."

TO RESUME OPERATIONS AT WALTERS REFINERY

Preparations are now under way to start operating the refinery of the Walters Refining Co. located at Walters, Okla. This plant was operated for a time last year following the organization of the Walters Refining Co. which took over the plant at Walters formerly operated by the Southern Oil Corp. At that time improvements were made at the refinery which had been shut down for several years.

The refinery was shut down late in 1928 and has not operated since that time. Van D. Rathbone, formerly superintendent of the refinery, has been manager and will be in charge of plant operations. When operations are resumed the company expects to operate with crude oil secured in the fields near Walters. C. R. Virtue of Yale, Okla., is president of the company. Herman Sonken of Kansas City, Mo., is vice-president, and B. E. Moses of Kansas City, secretary. The plant has a skimming capacity of 1,500 bbls. daily.

COCHRAN, VICKERS PRESIDENT

F. L. Cochran, general sales manager of the Midwest Refining Co., has been elected president of the A. A. Vickers Petroleum Co., to succeed A. A. Vickers, resigned. Mr. Cochran came to Denver recently to take the position of general sales manager under Vice President H. G. Naylor, director of sales. H. B. Carpenter, manager of the asphalt department, has been appointed manager of the Vickers company and will combine the duties of the two offices. Vickers company is the marketing division of the Midwest in Colorado and adjoining states on the south and east. The Aero Oil Co., another subsidiary, operates in the same capacity in Wyoming, and the Hughes Oil Co. in Montana.

FITZGERALD ASSISTANT GENERAL SALES MANAGER

T. E. Fitzgerald, who has been connected with the Mid-Continent Petroleum Corp. for the past 12 years, has been appointed assistant to the general sales manager of the corporation with headquarters in Tulsa. Mr. Fitzgerald joined the Mid-Continent corporation — then

T. E. Fitzgerald

known as Cosden & Co.—in 1917. He was first employed in the manufacturing and statistical department, joining the sales department in 1926.

Other changes in the Mid-Continent corporation's sales department were announced by R. W. McDowell, general sales manager. Fred Smith, who has been assistant manager in the tank car sales department for several years, has been appointed manager of the newly created Tulsa Division, handling tank car sales in Oklahoma and the southern territory and in all sections not served by other division offices.

J. C. Miller has been put in charge of the company's retail distribution in Oklahoma. The tank car and distributor sales for the St. Louis district in the future will be handled out of the St. Louis office instead of the Tulsa office.

REPLACE OLD TYPE STILLS

The Illinois Oil Co., which has operated a refinery at Cushing, Okla., for several years, has closed a contract for the erection of a pipe still. The still will be installed by Smith & Leslie, Inc.

The pipe still will take the place of an old battery of "cheese box" shell stills, probably the last of their type in the Mid-Continent field. These shell stills were installed during the boom days of Cushing development and have been operated consistently since that time.

The new pipe still is designed to secure the maximum yields of gasoline, kerosene and other products in a skimming operation. The still will have a capacity of 2,500 bbls. daily.

HOWEKETTE WITH MARLAND

CHICAGO, Mar. 9.—F. L. Howekette, until recently with the Chicago office of The Texas Company, has joined the Marland Oil Co., and will have charge of the retail distribution in Indiana and Illinois. He succeeds John Staff, who resigned.

SMALL COMPANIES MAKE GAINS IN CALIFORNIA

The smaller marketing companies in California are increasing their gasoline gallonage at the expense of some of the major marketing organizations according to the gasoline tax reports which were recently released covering the 1928 and 1927 operations.

The gasoline tax reports show that the 1928 gallonage of the four leading marketing organizations—Standard Oil Co. of California, The Shell Co. of California, Union Oil Co. and the Richfield Oil Co.—was less than in 1927, although the total gasoline consumpiton in California increased approximately 76,000,000 gallons.

Some of the other large marketers such as The Texas Company of California, General Petroleum Corp. and the Pan-American Petroleum Co. had small increases. The large increases came from the smaller distributors, a few of which increased their gallonage several hundred per cent. The McMillan, Hancock and Rio Grande companies were among the distributors with large increases. The following table gives the distribution by companies:

Gallonage of Principal Gasoline Distributors in California

Company	1927 Total Gal.	1926 Total Gal.
Standard Oil Co. ...	255,827,350	239,731,410
The Shell Co.	181,839,832	172,354,200
Union Oil Co.	135,642,221	121,546,517
Richfield Oil Co.	129,428,693	114,364,980
Associated Oil Co. ..	89,103,155	95,560,982
The Texas Co., Calif.	55,685,984	62,105,535
General Pet. Co. ..	32,644,894	55,529,547
Pan-Amer. Pet. Co.	35,404,793	44,418,545
Cal. Eastern Pet. Co.	23,496,394	28,460,366
Wilshire Oil Co. ...	19,599,865	21,792,140
Western O. & R. Co.	10,201,883	21,230,610
Hercules Co.	8,583,658	12,382,418
Seaboard Pet. Co. .	7,849,216	9,114,509
McMillan Pet. Co. .	5,974,087	14,932,951
Hancock Refg. Co.	3,526,980	21,135,540
Gilmore Oil Co. ...	3,304,630	1,284,011
Vernon Oil Refg. Co.	3,856,308	3,046,210
Seaside Oil Co.	4,122,596	9,620,672
U. S. Refg. Co.	2,097,795	2,454,447
Rio Grande Oil Co.	4,140,242	13,218,633
Lakeview Oil & Refg.	1,541,769	1,774,298
Navy Oil Co.	544,608	179,968
St. Helens Pet. Ltd.	438,133	4,839,441
Brown Process Co.	50,505	
Edington-Witz Refg.		6,111,437
Balance	2,776,075	15,222,633
Total	1,017,681,665	1,101,403,386

FILES CRACKING SUIT

CHICAGO, Mar. 12.—The Universal Oil Products Co. filed suit March 11 in the United States District Court, district of Delaware, against the Winkler-Koch Engineering Co. and the Root Refining Co., also against the Winkler-Koch Engineering Co. and the White Eagle Oil & Refining Co., alleging infringement of patents owned by plaintiff and asking for an accounting of profits and temporary and permanent injunction. The White Eagle and Root companies are said to be operating cracking processes installed by the Winkler-Koch company.

EMPIRE OPENS OFFICES

CHICAGO, Mar. 12.—The Empire Oil & Refining Co. has opened offices at 914 East Chicago Avenue, East Chicago, Ind., where the engineers are preparing plans for the refinery to be constructed on the Baldwin Locomotive Co. tract recently purchased by the Empire company.

Routine matters are now being ironed out in preparation for the actual construction of the refinery. The final approval of the city council is expected within a few days.

COSDEN OPENS OFFICE

CHICAGO, Mar. 9.—Cosden refineries at Big Spring, Tex., have opened a Chicago sales office on the seventeenth floor of the Straus Building at Michigan Avenue and Jackson Boulevard. George N. Moore will be in charge of the office.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

PROPERTIES OF PARAFFIN WAX

I would appreciate some special information telling what are the limits for the melting point of paraffin wax and how does it change with gravity? What are the best substances to dissolve it?—J. D. C.

The data covering the properties of paraffin wax have been collected by George A. Burrell and presented in convenient form, with mention of the original references, in The Oil and Gas Journal, October 18, 1928, page 130. You will find much additional information to that given below in this article.

Pure wax is a colorless, odorless and tasteless substance in the molten state. In the solid condition it is white. Its melting point generally varies from 115 to 140 degrees Fahrenheit, although in some cases lower or higher melting point waxes may be obtained. The specific gravity varies with the melting point; Morris and Adkins found values for semi-refined waxes at 60 degrees Fahrenheit from 0.8799 to 0.9250, which melted at 103.0 to 127.2 degrees Fahrenheit. The specific gravity varied from 0.920 to 0.780 at temperatures ranging from 60 to 126 degrees Fahrenheit, for waxes melting at 118.5 to 127.2 degrees Fahrenheit. The specific heat of wax varies from 0.57 at 52 degrees Centigrade to 0.637 at 100 degrees Centigrade, according to Bushong and Knight.

Gruse found that a commercially pure wax of melting point 124 degrees Fahrenheit was soluble in carbon tetrachloride to the extent of 35.8 grams of wax per 100 grams of solvent and only soluble in acetone to the extent of 0.218 grams. Measurements were made at 79 degrees Fahrenheit. Of other solvents tried 100 grams of benzine dissolved 31.7 grams of wax, ethyl alcohol (95 per cent) dissolved 0.2 grams; isopropyl alcohol 0.49 grams and various other higher alcohols from 3.3 to 3.9 grams. He quotes E. M. Johansen as finding that waxes dissolved in various gasolines to the extent of 7 to 10.6 per cent by weight of solution. Ether dissolved 4.9 per cent of wax.

Sullivan, McGill and French have determined that the solubility of paraffin wax in petroleum oils decreases with increasing viscosity of the solvent and that differences due to differences in the melting point of the wax or to variations in the viscosity of the solvent decrease with decreasing temperature. The heat of solution of wax in oil they found to be 40 calories per gram.

Wax is apparently composed of paraffin hydrocarbons of molecular formula varying from $C_{21}H_{44}$ to $C_{35}H_{72}$, although the first of the solid paraffins has the formula $C_{18}H_{38}$. The solids of lower molecular weight remain dissolved in the oil, i.e., in the pressed distillate of the wax plant.

HIGHEST USEFUL COMPRESSION RATIO

What is the meaning of the term highest useful compression ratio used in connection with the knocking character of gasolines and other fuels?—E. S. H.

H. Ricardo discovered (1918) that though detonation in the internal-combustion engine is influenced by a number of important factors, for example, magneto timing and position of plugs, mixture strength, design of piston head, and cylinder shape, etc., the trouble is due to a specific failing of the fuel. Under standard conditions, using a variable compression engine, the E. 35 type, he determined the point at which during increasing compression the engine gave the first audible signs of detonation. This point he has referred to as the highest useful compression ratio (H.U.C.R.), that is, the highest compression ratio which it is worth while to employ with a given fuel. If the compression ratio is raised above this limit, excessive detonation leads to pre-ignition and loss of power.

The highest useful compression ratios of several substances are given by Ricardo as shown in the table below:

Substance—	H.U.C.R.
Aromatic free gasoline	4.85
Kerosene (heavy fuel)	4.2
Cracked gasoline (53% unsaturated)	5.55
Pentane	5.85
Hexane	5.1
Heptane (normal)	3.75
Carbon disulphide	*6.15
Benzene	*6.9
Toluene and xylene	7.0
Cyclohexane (93% pure)	5.9
Ethyl alcohol (98%)	7.5
Methyl alcohol	*5.2
Butyl alcohol	7.3
Ethyl ether	3.9

*Pre-ignition at this point.

POUR TEST FOR BLACK OILS AND CYLINDER STOCKS

We enclose a resume showing pour tests by qualified chemists on a sample of 600 Pennsylvania steam refined stock. The results were, by Technical Paper 323B 12 (a) 85/90 degrees Fahrenheit; by T.P. 323A 40/45 degrees Fahrenheit; by T.P. 323B 12 (b) 25 degrees Fahrenheit. All tests were taken strictly according to the procedure laid down in the government papers mentioned. We should like to know just what is the pour test of the sample in question? If the method 323A is ruled out as now not officially authorized, what exactly does a pour test of maximum 85, minimum 25 mean? In other words, under this procedure, what would constitute a good delivery for a Pennsylvania 600 steam refined oil?—R. C. B. H.

The methods described in Technical Paper 323B should be followed when testing an oil because it is the latest publication by the Government. The description of all the detail of apparatus and method, as given on pages 37-41, are intended to control all known conditions which may influence the result, so it is necessary that there shall be no change in any part of the apparatus, also that no substitution be made in the specified procedure.

We find on pages 40 and 41 of the above paper: "As soon as the oil in the test jar does not flow when the jar is tilted, the test jar shall be held in a horizontal position for exactly 5 seconds, as noted by a stop watch * * * and observed carefully. If the oil shows any movement under these conditions the test jar shall be immediately replaced in the jacket and the same procedure repeated at the next temperature reading 5 degrees Fahrenheit lower. The test shall be continued in this manner until a point is reached at which the oil in the test jar shows no movement when the jar is held in a horizontal position for exactly five seconds."

Special Procedure for Black Oils and Cylinder Stocks

"12 (a) In those cases where it is known that a sample has been subjected to some temperature higher than 115 degrees Fahrenheit during the preceding 24 hours, or where the history of the sample in this respect is not known, the sample shall be held in the laboratory 24 hours before testing, unless three consecutive tests of the same sample in the same test jar check results. For those particular oils this shall be called the upper (maximum) pour point.

"(b) The lower (minimum) pour point shall be determined by heating a sample with stirring to 220 degrees Fahrenheit. The oil shall then be poured in the test jar, cooled to 90 degrees Fahrenheit as before, and the pour point determined as described in Section 11.

"(c) The upper and lower pour points shall be reported separately."

The pour point, as determined by this method, is largely a matter of the paraffin wax content and the nature of this wax; that is, whether crystalline or amorphous and the quantity of each. When the quantity of amorphous wax is large it is frequently impossible to obtain concordant results for the pour point. Sometimes the amorphous wax will start to solidify forming a soft mass of oil and wax. Masses of this kind may vary in size and be distributed throughout the oil. The oil may then be thick and thin in spots, and to bring the entire body of oil into a homogeneous condition it is necessary to heat the oil to high enough temperature to melt all of the wax and aid its solution in the oil. After the oil has been heated it should be cooled slowly, and this precaution must be observed when making the actual pour point.

While it is true that the pour point of some oils may be determined by several different experts with accuracy close enough for the results to check within 5 degrees Fahrenheit, there are many other oils which do not appear to permit this degree of accuracy. As mentioned above, part of the difficulty may be traced to the method, and in some cases to a misunderstanding of the critical terms employed. The report of A.S.T.M. Committee D-2, The Significance of Tests of Petroleum Products, page 8, says: "The pour point gives an indication of the temperature below which it may not be possible to pour or remove an oil from its container, or below which it might be dangerous to use the oil in gravity lubricating systems, where the head tending to produce flow is small. However, it should be borne in mind that the size and shape of the container, the head or force exerted upon the oil, and the nature of its physical structure when solidified, all have an effect on its tendency to flow * * * the pour test should be regarded as giving only an indication of what may be expected."

So far as the particular oil is concerned I hesitate to express an opinion without making a personal examination; however, it appears that the method expressly indicated for oils of this class that the upper and lower limits shall be reported separately, so I conclude that the pour test of the oil is 25/90 degrees Fahrenheit.

I may add that there is a tendency to abuse the pour test and to apply a meaning to it which must be far from what the A.S.T.M. committee ever expected. Some of this is probably due to a failure to understand what the word flow means. Webster's Dictionary defines the word:

To move with a continual change of place along the particles or parts, as a fluid; to change places or circulate as a liquid; to stream; run, as, rivers flow from springs and lakes; tears flow from the eyes.

Math.—To vary uniformly.

Physics—The type of motion characteristic of fluids, that is, of gases, liquids, and viscous solids. Flow implies freedom of motion among the particles of the moving substance, and consequent permanent changes of form under the action of forces. Ordinarily rigid solids, as lead, may be made to exhibit similar or analogous phenomena under great pressure.

It may be that it would be well to change the word to congealing or solidifying and then devise another test for determining the flowing and liquid properties of oils at low temperatures.

REMOVING CARBON DIOXIDE FROM NATURAL GAS

Would you kindly give a brief description of the most efficient method for commercially removing carbon dioxide from natural gas? Our problem concerns gas with a carbon dioxide content of 5 to 45 per cent.—J. W. W.

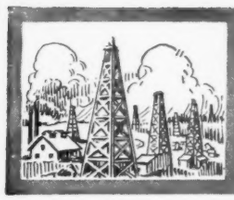
It is not possible to say what would be the most efficient method for removing the carbon dioxide from your natural gas without knowing all conditions, and these would have to be studied from a complete survey. The information below may be of some assistance.

The other constituents of natural gas containing large quantities of carbon dioxide are usually methane and ethane, and the removal of carbon dioxide would of course increase the combustion value. Methane boils at minus 258 degrees Fahrenheit and the boiling point of ethane is minus 127 degrees Fahrenheit, while the boiling point of carbon dioxide is 108 degrees Fahrenheit below zero. These facts suggest that a separation of the carbon dioxide may be accomplished if means are provided for adequate cooling of the gas, and proper expansion of the gas may accomplish this.

The boiling points mentioned above are at atmospheric pressure. Carbon dioxide is easily reduced to the liquid condition with slight increase of pressure, and then the temperature need not be very low. At the freezing point of water, 32 degrees Fahrenheit, carbon dioxide may be liquefied when the pressure is about 36 atmospheres, or say approximately 525 pounds to the square inch.

There are several chemical substances which combine with carbon dioxide to form carbonates and these may be used for extracting it from this gas. The ordinary alkaline substances in solution, such as lime water, caustic lime, hydrated lime, and sodium hydroxide (caustic soda) are commonly used for absorbing carbon dioxide.

The United States Bureau of Standards, at Washington, has made a study of carbon dioxide as a refrigerating medium of considerable importance. The investigations of the bureau covering measurements of the vapor pressure of carbon dioxide make available data for all temperatures and pressures at which liquid and vapor are in equilibrium. Address the Director, Bureau of Standards, Washington, D. C.



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Mar. 12		Mar. 5		Feb. 26	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.06½	.06⅝	.06½	.06⅝	.06½	.06⅝
56-58 450 endpoint	.06½	.06⅝	.06½	.06⅝	.06½	.06⅝
58-60 450 endpoint	.06½	.06¾	.06½	.06¾	.06½	.06¾
*56-60 437 endpoint (U. S. Motor)	.0701		.0702		.0677	
*60-62 437 endpoint	.0725		.0729		.0712	
*60-62 400 endpoint	.0733		.0737		.0743	
64-66 375 endpoint	.0800		.0829		.0828	
68-70 360 endpoint	.08⅛	.08¼	.08	.08¼	.08	.08¼
64-66 437 endpoint (blend)	.06¾	.07	.06¾	.07	.06¾	.07

*Weighted average prices March 11, 4 and February 25 as reported by representative refiners. Sales to jobbers only.

NORTH TEXAS—						
56-58 450 endpoint	.06⅜	.06½	.06¼	.06½	.06¼	.06½
58-60 450 endpoint	.06⅜	.06½	.06¼	.06½	.06¼	.06½
58-60 437 endpoint (U. S. Motor)	.06⅝	.06¾	.06½	.06¾	.06½	.06¾
60-62 400 endpoint	.07	.07¼	.07	.07¼	.07¼	
64-66 390 endpoint	.07¼	.07½	.07¼	.07½	.07½	
64-66 375 endpoint	.07½	.08	.07¾	.08	.07¾	.08
68-70 360 endpoint	.08	.08¼	.08	.08¼	.08	.08¼
64-66 437 endpoint (blend)	.06½	.06¾	.06½	.06¾	.06½	.06¾
NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.07¼		.07	.07¼	.07	
ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.07¼		.07	.07¼	.07	
PENNSYLVANIA—						
52-54 Naphtha	.08		.08¼	.08½	.08¼	.08½
54-56 Naphtha	.08	.08¼	.08½	.08¾	.08¾	.09
58-60 Gasoline	.08½	.08¾	.09	.09¼	.09	.09¼
60 Gasoline	.09	.09¼	.09¾	.10	.09¾	.10
62 Gasoline	.09¾	.10	.10½	.10¾	.10½	.10¾
64 Gasoline	.10¼	.10½	.10½	.10¾	.10½	.10¾
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.06	.07	.07	.08	.07	.08
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.06⅝	.06¾	.06⅝	.06¾	.06½	.06¾
56-58 450 endpoint	.06⅝	.86¾	.06⅝	.06¾	.06½	.06¾
58-60 437 endpoint (U. S. Motor)	.06¾	.07	.06¾	.07	.06⅝	.07
60-62 400 endpoint	.07¼	.07½	.07¼	.07½	.07¼	.07½
64-66 375 endpoint	.07¾	.08	.07¾	.08	.07¾	.08
68-70 360 endpoint	.08¼	.08½	.08¼	.08½	.08¼	
64-66 437 endpoint (blend)	.06⅞	.07⅛	.06¾	.07	.06½	.06¾
GULF COAST (Export)—						
58-60 (U. S. Motor)	.08½		.08½		.08½	
60-62 400 endpoint	.09½		.09½		.09½	
61-63 390 endpoint	.09¾		.09¾		.09¾	
64-66 375 endpoint	.10		.10		.10	

NATURAL GASOLINE

	Mar. 12		Mar. 5		Feb. 26	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.06¾	.07	.06⅞	.07	.07¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¾	.07	.06⅞	.07	.07½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.05¾		.05¾		.06½	
Grade BB, 84-92, 375 e.p., rec. 85%	.05½	.05¾	.05⅝	.05¾	.06¼	
Grade C, 80-90, 375 e.p., rec. 78%	.05	.05¼	.05¼	.05¾	.05¾	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07		.06⅞	.07	.07¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¾	.07	.06¾	.07	.07½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.05¾		.05¾		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05½	.05¾	.05⅝		.06¼	
Grade C, 80-90, 375 e.p., rec. 78%	.05	.05¼	.05¼		.05¾	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.07½		.07½		.08	
Grade BB, 84-92, 375 e.p., rec. 85%	.06¼		.06¼		.07	
Grade C, 80-92, 375 e.p., rec. 78%	.05½		.06		.06¼	
CALIFORNIA—						
75-78, 375-390 endpoint	.06	.06½	.06	.06½	.06	.06½
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07		.07		.07¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06¾	.07	.06¾		.07½	
Grade B, 76-85.9, 375 e.p., rec. 85%	.05⅜		.05¾		.06½	
Grade BB, 84-92, 375 e.p., rec. 85%	.05⅝	.05¾	.05⅝		.06¼	
Grade C, 80-90, 375 e.p., rec. 78%	.05		.05¼		.05¾	

BURNING OIL

	Mar. 12		Mar. 5		Feb. 26	
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.05⅞	.06	.05½	.05¾	.05½	.05⅝
42-44 water white Kerosene	.06⅛	.06⅜	.06	.06⅛	.06	.06⅛
NORTH LOUISIANA—						
41-43 water white Kerosene	.06¾		.06¼	.06½	.06¼	.06½
NORTH TEXAS—						
41-43 water white Kerosene	.05¾	.06	.05½		.05¾	.05½
40-42 water white Kerosene	.05⅝	.05¾	.05⅝	.05½	.05¼	.05½
ARKANSAS—						
41-43 water white Kerosene	.06½	.06¾	.06¼	.06½	.06¼	.06½
PENNSYLVANIA—						
43 Kerosene prime white	.07		.07		.06¾	.07
45 Kerosene water white	.07	.07⅛	.07	.07¼	.07	.07¼
46 Kerosene water white	.07½	.07¾	.07½	.07¾	.07½	.07¾
47 Kerosene water white	.07¾	.08	.07¾	.08	.07¾	.08
300 Mineral Seal	.07	.07¼	.07	.07¼	.07	.07¼
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.06	.06½	.06	.06½	.06	.06½
Engine distillate, 43-44, 445 endpoint	.06½	.07	.06½	.07	.06½	.07
Engine distillate, 42-44, 480 endpoint	.06	.06½	.06	.06½	.06	.06½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.05¾	.06	.05¾	.05⅞	.05⅝	.05¾
42-44 water white Kerosene	.06¼	.06½	.06⅛	.06¼	.06	.06¼
GULF COAST (Export)—						
41-43 prime white	.06¾		.06¾		.06¾	
41-43 water white	.07¾		.07¾		.07¾	

FUEL OILS

	Mar. 12		Mar. 5		Feb. 26	
OKLAHOMA (Group 3)—						
*Below 18 Fuel Oil, per bbl.	.52½	.55	.52½	.55	.52½	.55
*18-22 Fuel Oil, per bbl.	.57½	.62½	.57½	.62½	.60	.65
22-26 Fuel Oil, per bbl.	.62½	.67½	.62½	.67½	.65	.70
24-26 Fuel Oil, per bbl.	.67½	.72½	.67½	.72½	.67½	.75
26-30 Fuel Oil, per bbl.	.85	.95	.85	.95	.85	.95
28-30 Fuel Oil, per bbl. (industrial)	.90	1.00	.95	1.00	.95	1.00
28-30 Fuel Oil, per bbl. (zero cold test)	1.05	1.10	1.15	1.20	1.15	1.20
32-36 Gas Oil (industrial)	.03	.03⅛	.02⅞	.03⅛	.02⅞	.03⅛
32-36 Gas Oil (straw color)	.03⅛	.03¼	.03⅛	.03¼	.03⅛	.03¼
36-38 Distillate	.04	.04⅛	.04	.04¼	.04¼	.04⅜
38-40 Straw Distillate	.04⅛	.04⅜	.04¼	.04½	.04⅜	.04⅝

*Fuel Oil of 60 to 70 cold test available as low as 50 cents.

NORTH TEXAS—						
Below 20 Fuel Oil	.65	.70	.65	.70	.60	.62½
24-26 Fuel Oil, per bbl.	.70	.72½	.70	.72½	.65	.67½
32-36 Gas Oil (straw)	.03⅛	.03¼	.03⅛	.03¼	.03	.03¼
38-40 Straw Distillate	.04⅛	.04⅜	.04¼	.04½	.04¼	.04½
NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.70	.80	.70	.80	.70	.75
32-36 Gas Oil	.03½		.03½		.03½	
ARKANSAS—						
33-36 Distillate	.04⅛	.04¼	.04¼	.04½	.03¾	.04
32-36 Gas Oil (straw)	.03½		.03½	.03¾	.03½	
16-22 Refinery Fuel Oil, per bbl.	.70	.75	.70	.80	.70	.75
GULF COAST (South Texas)—						
Gas Oil	.03½	.04	.03½	.04	.03½	.04
Bunker C Fuel (cargo lots), per bbl.	.72½	.75	.72½	.75	.72½	.75
Bunker C Fuel (small lots)	.95	1.00	.95	1.00	.95	1.00
PENNSYLVANIA—						
30-34 Fuel Oil	.04½	.04¾	.04½	.04¾	.04½	.04¾
36-40 Fuel Oil	.04¾	.05	.04¾	.05	.04¾	.05
CALIFORNIA—						
33-36 Distillate	.03¾	.04	.03¾	.04	.03¾	.04
27-32 Distillate	.03	.03½	.03	.03½	.03	.03½
15-20 Fuel Oil, Bunker (at tide water)	.65	.85	.70	.85	.70	.85
15-20 Fuel Oil (cargo lots), per bbl.	.70	.85	.70	.85	.70	.85
27 plus Diesel, per bbl.	.90	1.05	.95	1.05	.95	1.05
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, Group 3, bbl.	.62½	.67½	.65	.67½	.65	.70
18-22 Fuel Oil, per bbl.	.55	.60	.55	.62½	.65	.70
16-20 Smackover, per bbl.	.90	.95	.90	.95	.90	.95
28-30 Fuel Oil (zero)	1.10	1.20	1.20	1.25	1.20	1.25
32-36 Gas Oil, zero	.03¼	.03½	.03⅜	.03⅝	.03¼	.03½
32-36 Gas Oil (industrial)	.03⅛	.03¼	.03¼	.03½	.03	.03¼
36-38 Distillate	.04	.04¼	.04¼	.04½	.04¼	.04⅜
38-40 Straw Distillate	.04¼	.04½	.04½		.04⅜	.04½

LUBRICATING OIL AND WAX

	Mar. 12		Mar. 5		Feb. 26	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06	.06½	.06	.06½	.06	.06½
100 vis., 3 color, 20-25 cold test	.05¼	.05½	.05¼	.05½	.05¼	.05½
150 vis., 3 color, 20-25 cold test	.07¼	.07½	.07¼	.07½	.07¼	.07½
150 vis., 4 color, 20-25 cold test	.07	.07¼	.07	.07¼	.07	.07¼
180 vis., 3 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¾	.09
180 vis., 4 color, 23-28 cold test	.08¼	.08¾	.08¼	.08¾	.08¼	.08¾
180 vis., 5 color, 23-28 cold test	.08¼	.08½	.08¼	.08½	.08¼	.08½
200 vis., 3 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
200 vis., 4 color, 23-28 cold test	.09	.09¼	.09	.09¼	.09	.09¼
200 vis., 5 color, 23-28 cold test	.08½	.08¾	.08½	.08¾	.08½	.08¾
240 vis., 3 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
240 vis., 4 color, 25-30 cold test	.11¾	.12	.11¾	.12	.11¾	.12
240 vis., 5 color, 25-30 cold test	.10¾	.11	.10¾	.11	.10¾	.11
280 vis., 3 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
280 vis., 4 color, 25-30 cold test	.12¾	.13	.12¾	.13	.12¾	.13
280 vis., 5 color, 25-30 cold test	.11¾	.12	.11¾	.12	.11¾	.12
Cylinder Stocks:						
600, steam refined, light green	.09	.10	.09	.10	.09	.10
600, steam refined, dark green	.07	.08	.07	.08	.08	
190-200 vis., D color Bright Stock	.33	.35	.33	.35	.33	.35
150-160 vis., D color Bright Stock	.30	.32	.30	.32	.30	.32
150-160 vis., E color Bright Stock	.28	.30	.28	.30	.28	.30
Waxes:						
124-126 White Crude Scale Wax	.03¾	.04	.03¾	.04	.03⅞	.04¼
PENNSYLVANIA—						
34 Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
34 Sundebloom	.07¾	.08	.07¾	.08	.07¾	.08
36 Miners' Neutral	.07¼	.07½	.07¼	.07½	.07¼	.07½
150, 3 color	.21½	.22	.21½	.22	.21½	.22
180, 3 color	.25½	.26	.25½	.26	.25½	.26
200, 3 color	.27½	.28	.27½	.28	.28	.28½
220, 3 color	.30	.30½	.30	.30½	.30	.30½
600, steam refined	.22	.22½	.22	.22½	.21½	.22
635, steam refined	.27½	.28	.27½	.28	.27½	.28
650, steam refined	.27½	.28	.27½	.28	.27½	.28
600, Pennsylvania flash	.30½	.31	.30½	.31	.31½	.32
630, Pennsylvania flash	.36½	.37	.36½	.37	.36½	.37
600, E filtered	.25½	.26	.25½	.26	.25½	.26
600, D filtered	.29½	.30	.29½	.30	.29½	.30
550, E filtered	.15½	.16	.15½	.16	.15½	.16
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.39	.40	.39	.40	.39	.40
*122-124 White Crude Scale Wax	.04		.04		.04¼	
*124-126 White Crude Scale Wax	.04¼		.04¼		.04¼	

*At New York.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.06½	.07	.06½	.07	.06½	.07
No. 3 color, 200 vis., pale oil	.09	.10	.09	.10	.09	.10
No. 3 color, 300 vis., pale oil	.10½	.11	.10½	.11	.10½	.11

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

No. 3½ color, 500 vis., pale oil	.11½	.12½	.11½	.12½	.11½	.12½
No. 4 color, 750 vis., pale oil	.14	.15	.14	.15	.14	.15
No. 5 to 6 color, 200 vis., red oil	.07½	.08½	.07½	.08½	.07½	.08½
No. 5 to 6 color, 300 vis., red oil	.08½	.09½	.08½	.09½	.08½	.09½
No. 5 to 6 color, 500 vis., red oil	.09½	.10½	.09½	.10½	.09½	.10½
No. 5 to 6 color, 750 vis., red oil	.13	.14	.13	.14	.13	.14
No. 2½ color, 200 vis., pale filtered	.11½		.11½		.11½	
No. 2½ color, 300 vis., pale filtered	.13	.13¼	.13	.13¼	.13	.13¼
No. 2½ color, 500 vis., pale filtered	.15½	.16	.15½	.16	.15½	.16
No. 2½-3 color, 750 vis., pale filtered	.18	.20	.18	.20	.18	.20
CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½
200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
300 vis., 3-3½ color	.13	.13¼	.13	.13¼	.13	.13¼
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.13¾
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11	.11¼
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.12	.12¼
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13¼	.14
500 vis., 4½-5 color	.15¼	.15½	.15¼	.15½	.15¼	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16¼	.16	.16¼	.16	.16¼

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Mar. 12	Mar. 5	Feb. 26
‡Gasoline, U. S. Motor, 58-60, 437	.09¼	.09¼	.09½
Kerosene, water white, 41-43	.08½	.08½	.08½
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05	1.05	1.05
†Fuel Oil, Diesel, 28-30, per bbl.	2.00	2.00	2.00
Gas Oil, 32-36 gravity	.05¼	.05¼	.05¼
25 pale Paraffin Oil	.11¾	.11¾	.11¾
28 pale Paraffin Oil	.07½	.07½	.07½
285 red Paraffin Oil	.11½	.11½	.11½
250 red Paraffin Oil	.11	.11	.11
225 red Paraffin Oil	.09½	.09½	.09½
200 red Paraffin Oil	.09	.09	.09
Refined Wax:			
120-122 a.m.p., per lb.	.05¼	.05¼	.05¼
125-127 a.m.p., per lb.	.05½	.05½	.0555
130-132 a.m.p., per lb.	.06¼	.06¼	.06¼
133-135 a.m.p., per lb.	.07	.07	.07
135-137 a.m.p., per lb.	.07½	.07½	.07⅝
Petrolatum in barrels, carload lots, per lb.:			
Dark green	.02	.02	.02
Amber	.03½	.03½	.03½
Extra amber	.03¾	.03¾	.03¾
Cream	.06½	.06½	.06½
Lily white	.07½	.07½	.07½
Snow white	.08½	.08½	.08½

*Lighterage, 5.0c a barrel extra. †Lighterage, 6.5c a barrel extra. ‡Price of 9¼ cents became effective March 5.

NEW YORK (BAYONNE) EXPORT PRICES

	Mar. 12	Mar. 5	Feb. 26
Gasoline, U. S. Motor, 58-60, 437, in cases	.2640	.2640	.2640
Kerosene, prime white, bulk	.07¾	.07¾	.07¾
Kerosene, water white, bulk	.08¾	.08¾	.08¾
Kerosene, standard white, in cases	.1765	.1765	.1765
Kerosene, water white, in cases	.1890	.1890	.1890
600, steam refined cylinder stocks, in bbls.	.30 .31	.30 .31	.30½ .31
635, steam refined	.32 .33	.32 .33	.32 .33
650, steam refined	.36 .37	.36 .37	.36 .37
600, Pennsylvania flash	.38 .39	.38 .39	.38 .39
630, Pennsylvania flash	.43 .44	.43 .44	.43 .44
600, Warren E	.34 .35	.34 .35	.34 .35
600, Oil City E	.33	.33	.33
Light 140-150 Bright Stocks	.46½	.46½	.46
Dark 140-150 Bright Stocks	.45	.45	.45

LOS ANGELES EXPORT PRICES

	Mar. 12	Mar. 5	Feb. 26
Kerosene, water white	.05½ .06	.05½ .06	.05½ .06
U. S. Motor Gasoline, 53-55, 437 e.p.	.07 .07½	.07 .07½	.07 .07½

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (January 11)*	.80
Other fields	See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

WEST TEXAS

Iatan*	Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler and Glasscock (July 26)‡	$ .65
Chalk†	.65
Mitchell†	.65

*Includes Howard County and Westbrook Fields. Marland Refining Co. pays $1.05 for Howard County crude, effective May 21.
†Magnolia Petroleum Co., January 26, 1929.
‡Posted by Humble Oil & Refining Co., Magnolia Petroleum Co., and Gulf Pipe Line Co.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (Below 36 gravity April 11)	$ .75
Bellevue	1.20
Urania (Oct. 16, 1928)	.90
East El Dorado (March 16, 1927)	1.00
Other fields	See gravity table

Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co., and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, Sugarland, Raccoon Bend, High Island, Pierce Junction and Spindletop.)

Grade A (March 14)*	$1.20
Grade B	See gravity table
Jennings, La. (March 14)†	$1.05
Saratoga, Batson, Daytona (March 14, 1927)‡	1.20
Markham (March 14)§	1.00
High Island (December 14)¶	1.00

*Humble Oil & Refining Co. and other major buyers. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Company.
¶Posted by Gulf Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective January 25, 1929)

Rock Creek, Wyo.	$1.18
Salt Creek	See gravity table
Big Muddy	1.28
Grass Creek, heavy (July 27, 1928)	.90
Grass Creek, light	1.36
Mule Creek (May 1, 1928)	1.10
Elk Basin	1.36
Lance Creek	1.38
Poison Spider (March 14, 1927)	1.00
Notches (March 14, 1927)	.65
Rex Lake (February 22)	1.10
Osage	1.38
Lost Soldier (contract)	1.00
Hamilton Dome (March 14, 1927)	.85
Greybull	1.57
Cat Creek (Montana) (July 27, 1928)	1.48
Sunburst (Montana) (May 18, 1928)	1.65
Torchlight	1.38
Artesia (July 27, 1928)	1.08
Hogback (New Mexico) (July 27, 1928)	1.43

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTH-WESTERN TEXAS

Luling (January 11)*	$ .80
Mirando (January 7)†	.80
Rockdale-Minerva (April 15):	
Below 28 gravity	1.25
28-38.9 gravity	1.27
39-39.9 gravity	1.29
40 and above	1.31
Thrall‡	...
Callihan (May 15)	1.75
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

*Posted by Magnolia Petroleum Co.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.
‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight.

EASTERN STATES

(Effective January 4, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$4.10
Bradford District Oil in National Transit Lines (Pennsylvania)	4.10
Penna Grade Oil in National Transit Lines (Pennsylvania)	4.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	4.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.85
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (March 12)	1.45
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (January 25, 1929)	1.65
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (January 25, 1929)	1.75
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (March 12, 1929)	1.50
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.60

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective January 25, 1929)

Lima	$1.50
Wooster	1.62
Illinois	1.45
Indiana	1.27
Princeton	1.45
Plymouth	1.18
Waterloo (November 17, 1926)	1.35
Western Kentucky (Sept. 17, 1925)	1.53
Dundee, Mich. (Mar. 11, 1929)**	.60
Midland, Mich, January 16, 1929)*	1.79
Saginaw, Mich., Saginaw Sand (February 10)†	1.89

(Continued on Page 142)

CRUDE OIL GRAVITY TABLE

Gravity—	Okla., Kans., N. C. Tex. 1	No. La. and Arkansas 2	Smackover, Ark. 3	Stephens, Ark. 4	Wheeler (Texas Panhandle) 5	Gray County (Texas Panhandle) 6	Carson and Hutchinson (Texas Panhandle) 7	Salt Creek, Wyo. 8	Grade B & Light Crude (G. Coast) 9	Somerset (South Central Texas) 10
24 and above	....	....	.90	....	....	....	....	....	....	....
Below 24	....	....	.75	....	....	....	....	....	....	....
Below 25	.60	....	....	....	....	....	....	....	1.05	....
25 to 25.9	.66	....	....	....	....	....	....	....	1.07	....
Below 26	....	....	....	....	....	....	....	....	....	....
26 to 26.9	.72	....	....	....	....	....	....	....	1.09	....
27 to 27.9	.78	....	....	....	....	....	....	....	1.11	....
Below 28	....	.78	....	.70	.70	.69	.72	....	....	....
28 to 28.9	.84	.84	....	.74	.70	.69	.72	....	1.13	....
29 to 29.9	.90	.90	....	.78	.70	.75	.72	.90	1.15	....
30 to 30.9	.96	.96	....	.82	.76	.81	.72	.96	1.17	....
31 to 31.9	1.02	1.02	....	.86	.82	.87	.72	1.02	1.19	....
32 to 32.9	1.08	1.08	....	.90	.88	.93	.78	1.08	1.21	1.05
33 to 33.9	1.11	1.13	....	....	.91	.96	.81	1.11	1.23	1.07
34 to 34.9	1.14	1.14	....	....	.94	.99	.84	1.14	1.25	1.09
35 to 35.9	1.17	1.17	....	....	.97	1.02	.87	1.17	1.27	1.11
36 to 36.9	1.20	1.20	....	....	1.00	1.05	.90	1.20	....	1.13
37 to 37.9	1.23	1.23	....	....	1.03	1.08	.93	1.23	....	1.15
38 to 38.9	1.26	1.26	....	....	1.06	1.11	.96	....	....	1.17
39 to 39.9	1.29	1.29	....	....	1.09	1.14	.99	....	....	....
40 to 40.9	1.32	1.32	....	....	1.12	1.17	1.02	....	....	....
41 to 41.9	1.35	1.35	....	....	1.15	1.20	1.05	....	....	....
42 to 42.9	1.38	1.38	....	....	1.18	1.23	1.08	....	....	....
43 to 43.9	1.41	1.41	....	....	1.21	1.26	1.11	....	....	....
44 and above	1.44	1.44	....	....	1.24	1.29	1.14	....	....	....

Column 1, Note—Magnolia Petroleum Co. posted schedule January 24, 1929, making price below 26 gravity 60 cents per barrel, 26-26.9 gravity 65 cents, 27-27.9 gravity 70 cents, 28-28.9 gravity 75 cents, 29-29.9 gravity 80 cents, 30-30.9 gravity 90 cents and 31-31.9 gravity $1, with balance of the price schedule as shown.

Oklahoma—Humble Oil & Refining and Carter Oil Co. January 24, Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., The Texas Company, January 25.

North Central Texas—Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas, Iatan and Panola, Iatan posted a flat price of 93 cents by Magnolia on January 14, 1928), Currie, Nocona and Moran. Prairie, Sinclair and Gulf, The Texas Company, January 25, Humble Oil & Refining Co., January 24.

Kansas—Prairie, Sinclair and The Texas Company, January 25; Carter, January 24.

Column 2—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer and El Dorado only], Standard Oil Co. of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co., Magnolia Petroleum Co., schedule effective January 26 applies to Pine Island, Haynesville, Bull Bayou, Louisiana, and El Dorado, Ark., light crude. The Texas Company January 24 posted prices below 28 gravity at 6 cents differential per degree with minimum of 60 cents for all below 24 gravity.

Column 3—February 6, Louisiana Oil Refining Corp.; February 7, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co., and on February 10, Atlantic Oil Producing Co.

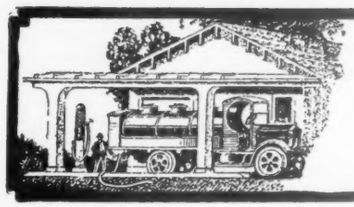
Column 4—Atlantic Oil Producing Co., Louisiana Oil Refining Corp., January 28.

Column 5, 6 and 7—Humble Oil & Refining Co., Magnolia Petroleum Co., January 24, 1929.

Column 8—Midwest Refining Co., January 25, 1929. All crude over 37 gravity $1.23 per barrel.

Column 9—Humble Oil & Refining Co. and other major buyers January 26 (schedule ends 35 and above), with exception of Magnolia Petroleum Co., which stops at 31 degrees gravity. Sun Pipe Line Co. and The Texas Company posted 2 cents differential for each degree above 35 gravity and 1.37 for 40 gravity and above.

Column 10—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns March 12.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago dist.†	14.0	15.0	...	12.0
Decatur, Ill.	14.2	15.2	...	12.1
E. St. Louis	13.4	14.4	...	11.2
Joliet	14.4	15.4	...	12.3
Peoria	14.2	14.0	...	12.1
Quincy	14.2	15.2	...	11.9
Davenport, Ia.	17.5	18.5	3.0	12.3
Des Moines	17.5	18.5	3.0	12.3
Keokuk	17.5	18.5	3.0	13.3
Sioux City	17.1	18.1	3.0	11.9
Duluth, Minn.	17.5	18.5	2.0	12.9
Mankato	17.1	18.1	2.0	12.7
Minneapolis	17.2	18.2	2.0	12.9
La Crosse, Wis.	17.2	18.2	2.0	13.0
Milwaukee	16.1	17.1	2.0	11.9
Madison	16.3	17.3	2.0	12.1
Detroit, Mich.	17.8	18.8	3.0	13.7
Grand Rapids	17.7	18.7	3.0	13.6
Saginaw	17.9	18.9	3.0	13.8
Evansville, Ind.	17.0	18.0	3.0	13.0
Fort Wayne	17.4	18.4	3.0	13.4
Indianapolis	17.2	18.2	3.0	13.2
South Bend	17.4	18.4	3.0	13.4
Fargo, N. D.	18.9	19.9	2.0	14.9
Huron, S. D.	19.3	20.3	4.0	13.7
Sioux Falls	18.1	19.1	4.0	13.4
K. C., Mo.*	16.9	17.9	3.0	10.6
Springfield*	16.8	17.8	3.0	11.5
St. Louis*	15.9	16.9	2.5	11.3
St. Joseph	16.5	17.5	3.0	11.2
Wichita, Kans.	14.8	15.8	2.0	10.8
Bartlesville, Ok.	15.5	16.5	3.0	10.5

*State tax 2 cents; remainder city tax.
†Effective February 20, discounts on Q.D.A. in Chicago district 2 cents off service station price on purchases of 500 gallons or more per month and 4 cents on purchases of 1,000 gallons or more per month.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14.7	11.9
V. M. & P. naphtha	16.2	12.9
Cleaner's naphtha	18.0	13.9
Stanisol	19.0	14.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting. Effective January 5.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 or more gallons	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline: 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month, and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	15.0	*20.0	...	14.0
Philadelphia	15.0	*20.0	...	14.0
Scranton	15.0	*20.0	...	14.0
Allentown	15.0	*20.0	...	14.0
Altoona	15.0	*20.0	...	14.0
Erie	15.0	19.0	...	14.0
Dover, Del.	18.0	20.0	3.0	14.0
Wilmington	18.0	20.0	3.0	14.0
Springf'd, Mass.	18.0	20.0	2.0	15.0
Worcester	18.0	20.0	2.0	15.0
Boston	18.0	20.0	2.0	15.0
Providence, R.I.	18.0	20.0	2.0	15.0
Hartford, Conn.	18.0	20.0	2.0	14.0
New Haven	18.0	20.0	2.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the state.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	16.25	18.25	2.0	12.25
McCook	17.75	19.75	2.0	13.75
Norfolk	16.75	18.75	2.0	12.75
N. Platte	17.75	19.75	2.0	13.50
Scottsbluff	17.75	19.75	2.0	13.25

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.*	16.5	19.5	5.0	16.0
Baton Rouge	15.0	18.0	4.0	14.5
Alexandria	16.0	19.0	4.0	16.0
Lafayette†	17.0	20.0	5.0	14.0
Lake Charles	16.5	19.5	4.0	16.0
Shreveport	16.0	19.0	4.0	15.0
Knoxv'le, Tenn.	20.0	24.0	5.0	16.0
Memphis	18.0	22.0	5.0	12.5
Chattanooga	19.5	23.5	5.0	16.0
Nashville	19.0	23.0	5.0	16.0
Bristol	20.0	23.0	5.0	14.0
Lit. Rock, Ark.	18.0	21.0	5.0	13.0

*Tax of 5 cents includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax. †Five-cent tax includes 1-cent tax in Lafayette Parish.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	21.0	23.0	4.0	16.5
Augusta	21.0	23.0	4.0	15.5
Macon	21.0	22.0	4.0	16.5
Savannah	20.0	22.0	4.0	15.5
Birm'ham, Ala.	18.0	20.0	4.0	13.0
Mobile	21.0	23.0	4.0	15.0
Montgomery	22.0	24.0	4.0	16.5
Clarks'le, Miss.	21.0	23.0	5.0	13.0
Jackson	20.0	22.0	5.0	13.0
Natchez	20.5	22.5	5.0	14.0
Gulfport	22.5	24.5	5.0	14.0
Vicksburg	20.5	22.5	5.0	14.0
Jack'ville, Fla.	22.0	24.0	5.0	14.5
Miami	23.0	25.0	5.0	15.5
Pensacola	23.0	25.0	5.0	14.5
Tampa	22.0	24.0	5.0	14.5
Lexington, Ky.	20.0	22.0	5.0	15.5
Covington	20.0	21.0	5.0	15.5
Louisville	20.0	22.0	5.0	15.0
Ashland	21.0	23.0	5.0	15.5
Catlettsburg	21.0	23.0	5.0	15.5

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola and Mobile taxes include 1-cent city levy. Gulf port tax includes privilege tax of 2 cents in addition to state tax.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	16.0	18.0	...	15.0
New York*	16.0	18.0	...	15.0
Buffalo	16.0	18.0	...	14.0
Rochester	16.0	18.0	...	14.0
Syracuse	16.0	18.0	...	15.0
Boston, Mass.	18.0	20.0	2.0	15.0
Augusta, Me.	20.0	22.0	4.0	15.0
Manch't'r, N.H.	20.0	22.0	4.0	15.0
Burlington, Vt.	19.0	20.0	4.0	15.0

*Prices in steel barrels.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlantic City	16.0	20.0	2.0	13.0
Newark, N. J.	16.0	20.0	2.0	13.0
Annapolis, Md.	18.0	22.0	4.0	13.0
Baltimore	18.0	22.0	4.0	13.0
Cumberland	18.0	22.0	4.0	13.0
Washington	16.0	20.0	2.0	13.0
Danville, Va.	19.0	23.0	5.0	13.0
Norfolk	19.0	23.0	5.0	13.0
Petersburg	19.0	23.0	5.0	13.0
Roanoke	19.0	23.0	5.0	13.0
Richmond	19.0	23.0	5.0	13.0
Ch'rist'n, W.Va.	18.0	22.0	4.0	13.0
Keyser	18.0	22.0	4.0	13.0
Parkersburg	18.0	22.0	4.0	13.0
Wheeling	18.0	22.0	4.0	13.0
Charlotte, N. C.	18.0	22.0	4.0	13.0
Hickory	18.0	22.0	4.0	13.0
Mt. Airy	18.0	22.0	4.0	13.0
Salisbury	18.0	22.0	4.0	13.0
Ch'leston, S. C.	19.0	23.0	5.0	13.0
Columbia	19.0	23.0	5.0	13.0

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
All Ohio points	17.0	18.0	3.0	12.0

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	16.0	20.0	2.0	12.0
Fort Worth	13.0	16.0	2.0	12.0
Houston	16.0	20.0	2.0	13.0
San Antonio	13.0	17.0	2.0	11.0
El Paso	17.0	20.0	2.0	16.0
Texarkana	16.0	20.0	2.0	13.0
Muskogee, Ok.*	15.0	17.0	3.0	12.0
Okla. City*	16.0	18.0	3.0	12.0
Tulsa*	17.0	19.0	3.0	10.0
Ft. Smith, Ark.	15.0	19.0	5.0	13.0
Little Rock	17.0	21.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	14 0	16 0	3 0	14.5
Pueblo	17.0	20.0	3.0	14.5
Grand Junction	21.5	24.5	3.0	18.0
Casper, Wyo.	18.0	21.0	3.0	13.0
Cheyenne	19.0	22.0	3.0	14.5
Butte, Mont.	22.5	25.5	3.0	19.0
Helena	22.5	25.5	3.0	19.0
Salt Lake, Utah	21.0	24.0	3.5	17.0
Albu'que, N. M.	22.0	25.0	5.0	17.0
Boise, Idaho	21 5	24 5	4 0	19.0
Twin Falls	23.5	26.5	4.0	19.0

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
San Francisco	15.0	19.0	3.0	15.5
Los Angeles	14.5	18.5	3.0	15.5
Reno, Nev.	22.0	26.0	4.0	19.0
Portland, Ore.	15.5	19.5	3.0	16.5
Seattle, Wash.	14.5	18.5	2.0	16.5
Tacoma	14.5	18.5	2.0	16.5
Spokane	18.5	22.5	2.0	20.5
Phoenix, Ariz.	18.0	22.0	4.0	20.5

TANK WAGON CHANGES

February 27—Magnolia Petroleum Co. advanced gasoline tank wagon 1 cent and service station price 2 cents at Muskogee, Okla. Same company advanced gasoline service station price 1 cent at Texarkana, Fort Smith and Little Rock, Ark.

March 1—Standard Oil Co. of Louisiana advanced gasoline tank wagon and service station prices 1 cent at Lafayette, La., due to a 1-cent tax becoming effective in Lafayette Parish.

March 5—Standard Oil Co. of Louisiana reduced gasoline service station price 1 cent at Bristol, Tenn.

March 9—Magnolia Petroleum Co. reduced gasoline tank wagon and service station prices 1 cent at Fort Smith and Little Rock, Ark.

CRUDE PRICE CHANGES

March 11—Standard Oil Co. of Indiana advanced Dundee, Mich., crude oil 10 cents to 60 cents per barrel and announced that the company would purchase 20 per cent of the production.

March 12—Joseph Seep Purchasing Agency reduced Cabell and Somerset crudes 10 cents.

CRUDE OIL PRICES

(Continued from Page 141)

Saginaw, Mich., Beres Sand (February 10)†	1.70
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (March 16)‡	1.60
Oil in line in Stoll Oil Refining Co. in Oil City, Ky. (Feb. 16, 1929)§	1.60
Oil Springs (Canada)¶	1.97
Petrolia (Canada)¶	1.90

*Posted by Pure Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
§Posted by Stoll Oil Refining Co.
¶Posted by Imperian Oil Co., Ltd.
**Posted by Standard of Indiana.

MEXICAN CRUDE

Panuco heavy (f.o.b. Mexican ports)	$1.15

Note—Due to the fact that the exportation of Tuxpan light crude has become a negligible factor, prices will no longer be published.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective January 16, 1929)

Gravity	Salt Lake, Potrero, Newport, Long Beach Summerland, Lawndale, Los Angeles, Fullerton, Richfield, Torrance, Olinda-Brea, Alamitos Heights, Signal Hill, Seal Beach, Huntington Beach, Athens, Inglewood, Rosecrans-Dominguez, Watsonville 1	Whittier, La Habra, Coyote Hills 2	Midway-Sunset Elk Hills, Lost Hills, Buena Vista Hills 3	Montebello 4	Santa Fe Springs 5	Santa Maria, Coalinga 6	Wheeler Ridge, Fruitvale 7	Orcutt 8	Elwood, Ventura, Rincon 9	Kern River†, Newhall-McKittrick, Mount Poso, Round Mountain 10
14 to 14.9	.70	.70	.50	.70	....	.50	.50	.65	.70	.50
15 to 15.9	.70	.70	.50	.70	....	.50	.50	.65	.70	.50
16 to 16.9	.70	.70	.50	.70	....	.50	.50	.65	.70	.50
17 to 17.9	.70	.70	.50	.70	....	.50	.50	.65	.70	.50
18 to 18.9	.75	.75	.56	.70	....	.56	.56	.70	.75	.50
19 to 19.9	.80	.80	.62	.75	....	.62	.62	.70	.80	.50
20 to 20.9	.85	.84	.68	.80	....	.68	.68	.70	.85	....
21 to 21.9	.89	.88	.74	.85	.89	.74	.74	.86	.86	....
22 to 22.9	.93	.91	.80	.90	.92	.80	.80	.87	.87	....
23 to 23.9	.97	.94	.85	.95	.95	.85	.85	.90	.90	....
24 to 24.9	1.01	.97	.90	.98	.98	.88	.88	.93	.94	....
25 to 25.9	1.05	1.00	.95	1.01	1.01	.91	.91	.95	.98	....
26 to 26.9	1.09	1.04	1.00	1.04	1.04	.94	.94	.97	1.02	....
27 to 27.9	1.13	1.08	1.05	1.07	1.07	.98	.97	....	1.06	....
28 to 28.9	1.17	1.12	1.10	1.10	1.10	1.02	....	....	1.10	....
29 to 29.9	1.21	1.16	1.16	1.13	1.15	1.06	....	....	1.14	....
30 to 30.9	1.25	1.20	1.22	1.16	1.20	1.10	....	....	1.18	....
31 to 31.9	1.30	....	1.28	....	1.25	1.14	....	....	1.23	....
32 to 32.9	1.35	....	1.34	....	1.30	1.18	....	....	1.28	....
33 to 33.9	1.41	....	1.40	....	1.35	1.22	....	....	....	....
34 to 34.9	1.47	....	1.46	....	1.40	1.26	....	....	....	....
35 to 35.9	1.53	....	....	....	1.45	1.30	....	....	....	....
36 to 36.9	1.59	....	....	....	1.50	....	....	....	....	....
37 to 37.9	1.65	....	....	....	1.55	....	....	....	....	....
38 to 38.9	1.71	....	....	....	1.60	....	....	....	....	....
39 to 39.9	1.77	....	....	....	1.65	....	....	....	....	....
40 to 40.9	1.83	....	....	....	....	....	....	....	....	....
41 to 41.9	1.89	....	....	....	....	....	....	....	....	....
42 to 42.9	1.95	....	....	....	....	....	....	....	....	....

Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights Crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity. Dominguez and Athens-Rosecrans, 24 to 42.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 45 cents.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9 posted by Union Oil Co. only.

†On October 2, 1928, Standard Oil Co. of California discontinued contracting for purchase of Kern River crude and on October 20 established following prices on grades below 14 gravity; 11 to 11.9 degrees at 45 cents.

On December 1, 1928, the Union Oil Co. adopted the above schedule of the Standard on Kern River crude and in addition posted Midway-Sunset, Elk Hills, Lost Hills and Coalinga crude as follows: 11-11.9 gravity, 45 cents; 12 to 12.9 gravity, 55 cents; and 13 to 13.9 gravity at 65 cents. All grades of Elwood crude were cut 7 cents.

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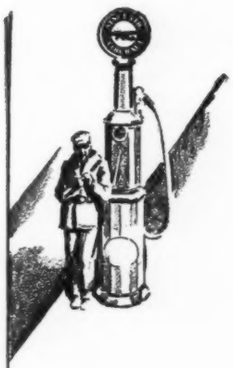

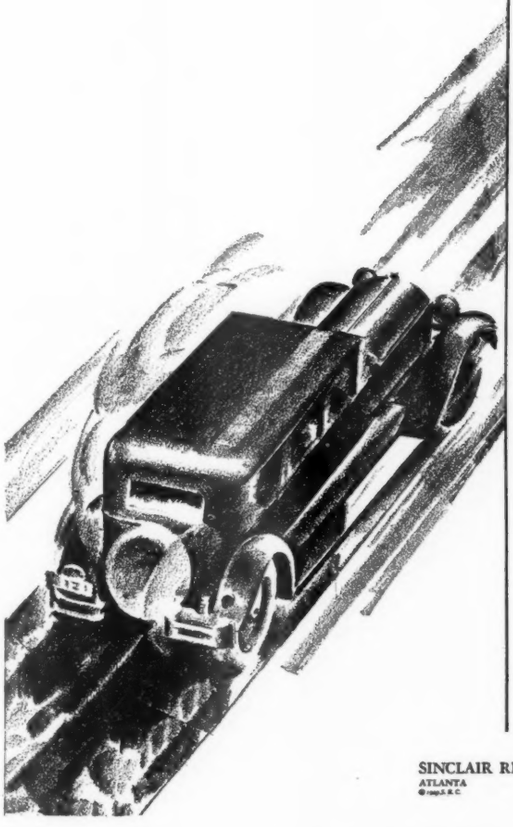

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California Issues Show Better Tone

Remainder of List of Oil Securities Revealed Little Activity. Decrease in Production Helped

An improved tone in the California group marked the activity of the oil securities during the past week. The remainder of the list showed little activity, but the Pacific Coast issues were exceptionally strong. Richfield Oil, Union of California, and Rio Grande were the leaders in the upward movements of the California offerings.

Rio Grande seemed in especially good demand. The success of wells drilled on the Elwood Terrace Field which this company owns jointly with the Barnsdall Oil Co. is reported to have been responsible for much of the strength.

Call money raised to high rates played havoc with the general market part of last week, and naturally the oil group suffered with the rest of the list.

A decrease in the weekly average production of crude oil also had some effect in stopping any downward tendencies of the oil group.

The Texas Corporation

The Texas Corporation for year ended December 31, 1928, reports net income of $45,073,879 after Federal taxes, depreciation, depletion, intangible drilling costs and other charges, equivalent to $5.34 a share (par $25) earned on 8,443,354 shares of stock. This compares with $20,029,405 or $2.78 a share on 7,219,243 shares in 1927.

Consolidated income account for year 1928 compares as follows:

	1928	1927
Gross earnings	$196,234,235	$141,125,857
Gen. exp.	97,488,544	80,539,912
Taxes	10,771,195	*7,168,247
Intang. drill. costs.	10,543,028	8,470,422
Depl. and amort.	8,115,057	7,555,475
Deprec.	25,528,614	21,189,643
Op. income	$43,787,798	$16,204,158
Other inc.	3,087,302	4,401,824
Total inc.	$46,875,100	$20,605,982
Interest	1,907,567	576,577
Loss. app. min. inst.	‡106,346	
Net income	$45,073,879	$20,029,405
Div. cash	24,306,712	21,180,915
Surplus	$20,767,167	§$1,151,510
Prev. surplus	111,059,396	†128,528,708
Total surplus	$131,826,563	$127,377,198
Adjust.	$578,738	‡87,022
Balance	$131,247,826	$127,464,220
Stock dividends		16,404,825
P. and L. surplus	$131,247,826	$111,059,395

*In addition $17,224,438 was paid or accrued for state gasoline taxes. †Adjusted. §Deficit. ‡Credit.

Illinois Pipe

Statement of Illinois Pipe Line Co. as of December 31, 1928, shows total assets of $44,309,770 comparing with $41,872,168 at end of 1927, and profit and loss surplus $8,955,957 against $7,819,570 at close of previous year.

Balance sheet of Illinois Pipe Line Co. as of December 31, 1928, compares as follows:

Assets	1928	1927
Inv. pipe line prop.	$37,440,317	$32,169,009
Other invest.	2,171,292	3,071,220
Cash and accts. rec.	3,198,781	3,070,380
Mat. and sup.	997,292	1,011,532
Def. assets., etc.	502,088	550,027
Total	$44,309,770	$41,872,168
Liabilities		
Cap. stock	$20,000,000	$20,000,000
Tax res.	946,979	923,166
Depr. res.	14,258,654	12,774,377
Accts. pay.	136,332	213,054
Unadj. cred.	11,848	142,001
Surplus	8,955,957	7,819,570
Total	$44,309,770	$41,872,168

California Petroleum

Report of California Petroleum Corp. and subsidiaries (controlled by The Texas Corporation) for year ended December 31, 1928, shows net profit of $1,648,919, after taxes, intangible development costs, depreciation, depletion, interest, etc., equivalent to 80 cents a share (par $25) on 2,060,966 shares of common stock. This compares with $1,315,451, or 64 cents a share in 1927.

Consolidated income account for year 1928 compares as follows:

	1928	1927
*Net profit	$1,648,919	$1,315,451
Common dividends	2,060,966	3,055,414
Deficit	$412,047	$1,739,963

*After taxes, intangible development costs, interest, depreciation, depletion, etc.

Surplus account follows: Surplus December 31, 1927, $19,767,478; deduct: Adjustment of previous surplus, $24,125,608; deficit December 31, 1927, after adjustments, $4,358,130. Net profit for 1928, $1,648,919; balance deficit, $2,709,211; dividends paid, $2,060,966; deficit December 31, 1928, $4,770,177.

Lone Star Gas

Lone Star Gas Corp. declared regular quarterly dividend of 50 cents, payable March 30 to stock of record March 19.

Humble Oil

Humble Oil & Refining Co. declared the usual extra dividend of 20 cents and the regular quarterly dividend of 30 cents, both payable April 1 to stock of record March 12.

West Coast Oil

West Coast Oil Co. declared usual extra dividend of $3 and regular quarterly dividend of $1.50 on the preferred, both payable April 5 to stock of record March 18.

Gulf Oil

Gulf Oil Corp. declared regular quarterly dividend of 37½ cents, payable April 1 to stock of record March 20.

Richfield Oil

Pamphlet report of Richfield Oil Co. of California and subsidiaries, for the year ended December 31, 1928, shows net profit of $7,818,076 after depreciation, depletion, interest and Federal taxes, the same as shown in preliminary statement, equivalent, after 7 per cent preferred dividend requirements, to $4.65 a share (par $25) earned on 1,543,771 average number of common shares outstanding during the year, and to $3.80 a share on 1,887,123 common shares outstanding at the end of the year. This compares with net profit of $3,742,884 in 1927, or $3.07 a share on 1,169,293 common shares outstanding at the end of that year.

Mountain Producers

Mountain Producers Corp. declared regular quarterly dividend of 65 cents, payable April 1 to stock of record March 15.

Buckeye Pipe Line

Buckeye Pipe Line Co.'s operations last year, resulting in net income of $1,207,

OIL BONDS ON THE NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members New York Stock Exchange, Kennedy Bldg., Tulsa, Okla.

Amount outstanding	Company—	Date	Pct.	Int.	For week ended Mar. 8— Sales	High	Low	Close
.....	Atlantic Refining Co.	July 1937	5	J&J	40,000	102¼	100¼	100½
18,864,500	Barnsdall Oil with war.	Dec. 1940	6	J&D	No sales.			
6,000,000	Barnsdall Oil without war.	Dec. 1940	6	J&D	No sales.			
11,400,000	California Pet. conv. deb.	Nov. 1938	5½	M&N	34,000	102¼	101⅛	102
7,400,000	California Pet. conv. deb.	Feb. 1939	5	F&A	17,000	99	98⅜	98⅝
.....	General Petroleum	Aug. 1940	5	F&A	No sales.			
25,000,000	Humble O. & R. deb.	July 1932	5½	J&J	55,000	101⅛	100⅛	101⅛
24,239,000	Humble O. & R. deb.	Apr. 1937	5	A&O	47,000	100	99¾	99⅞
10,103,000	Mid-Cont. Pet. Corp.	Mar. 1940	6½	M&S	No sales.			
3,745,000	Pan-American Pet. & T.	Aug. 1930	7	F&A	No sales.			
10,161,900	Pan-American Pet. & T.	Nov. 1934	6	M&N	5,000	102¾	102⅛	102⅛
40,000,000	Phillips Pet.	June 1939	5½	J&D	100,000	90¾	90	90⅛
.....	Pierce Oil deb.	June 1931	8	J&D	No sales.			
.....	P. & R. Corp. without war.	June 1931	8	J&D	No sales.			
.....	Producers & Refiners Corp.	June 1931	8	J&D	No sales.			
20,000,000	Pure Oil	Aug. 1937	5½	F&A	45,000	98¼	97⅛	97⅜
30,000,000	Shell Pipe Line Co.	Nov. 1952	5	M&N	60,000	95¼	94	94⅜
50,000,000	Shell Union Oil Co.	May 1947	5	M&N	66,000	97	96⅛	96⅝
3,431,500	Simms Pet. Co.	Nov. 1929	6	M&N	No sales.			
44,816,500	Sinclair Co. Oil Co. A	Mar. 1937	7	M&S	78,000	103	102	102½
23,086,500	Sinclair Co. Oil Co. B	Mar. 1938	6½	J&D	44,000	100½	99	99
20,000,000	Sinclair Co. Oil Co. D	Sept. 1930	6	M&S	60,000	99¼	98⅞	99
.....	Sinclair Cr. Oil Pur. Co. A	Jan. 1938	5½	J&J	23,000	96½	95⅞	95⅝
.....	Sinclair Pipe Line Co.	Oct. 1942	5	A&O	32,000	94	93¼	94
15,000,000	Skelly Oil Co.	Mar. 1939	5½	M&S	8,000	102½	101½	101½
.....	Standard Oil of N. J.	Dec. 1946	5	F&A	61,000	102½	102	102½
.....	Standard Oil of N. Y.	Dec. 1951	4½	J&D	80,000	96½	95⅝	96⅛
.....	Superior Oil Co.	Feb. 1929	7	F&A	No sales.			
.....	Union Oil of Calif.	Jan. 1931	5	J&J	2,000	101⅝	101⅝	101⅝
8,934,500	Union Oil of Cal. 20 yr. A	May 1942	6	F&A	7,000	108⅞	108⅞	108⅞
9,419,000	Union Oil of Cal. series C	Feb. 1935	5	A&O	11,000	98¼	98¼	98¼
4,870,000	White Eagle Oil & Ref.	Mar. 1937	5½	M&S	30,000	102¼	100¼	101¼

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Par value	Stocks	For week ended March 8— Sales	Open	High	Low	Last	Change
$6.75	.45	2 7/16	.55	1½	.53	$5	Amer. Con. Oilfields	20,300	61	62	51	55	— 7
..	..	7½	2¾	9½	3⅛	N.P.	Amer. Maracaibo	3,400	6	6	5⅝	5¾	— ⅛
..	..	2¾	1	4½	2¼	$10	Argo Oil	3,100	2¼	2⅜	2¼	2¼	+ ⅛
85¼	60	40	20½	55	32¾	N.P.	British American	100	5¾	5¾	5⅝	5⅝	.....
28⅜	9¼	28¼	15½	4½	3⅞	25c	Carib. Syndicate (new)	4,800	2¾	3	2¾	3	+ ¼
..	..	58¾	40¾	90⅞	54	$20	Cities Service	38,400	119⅞	103	101½	103	+ 1⅜
..	..	95⅜	87	103½	94½	100	Cities Service, pfd.	1,300	97¼	97½	97	97½	.....
..	..	87⅛	7⅜	9⅝	8⅞	10	Cities Service, pfd. B	200	9	9	9	9	.....
3½	1¾	3⅞	1⅛	3¼	76	1	Colombia Syndicate	4,100	1⅜	1⅜	1¼	1¼	— ⅛
..	..	9¾	6⅜	8⅞	6¼	10	Consolidated Royal	8,400	10¼	10⅜	9	9	— 1
16	10	14⅞	9½	17½	9½	N.P.	Creole Syndicate	18,200	9½	9⅝	8⅞	9	— ½
..	..	3	.50	3¼	.76	N.P.	Crown Central	800	1⅜	1½	1⅛	1½	.....
7⅞	6¾	12	4	33½	3¼	N.P.	Darby Petroleum	150	21	21	20	21	.....
..	..	2½	74	2¼	1	N.P.	Derby Oil & Refining	800	3	3⅜	3⅛	3⅛	+ ⅜
..	..	16¾	4	21⅜	7½	N.P.	Derby Oil & Refining, pfd.	No sales.					
..	..	2	.40	.53	.15	N.P.	Gilliland ctfs.	No sales.					
98	92	118	86¼	165	101⅛	$25	Gulf Oil Corp.	9,800	149¾	149⅞	147	147¾	— 3½
$3.00	.83	2½	.80	3⅜	1	5	Intercontinental Pet.	7,200	1⅞	1⅞	1¾	1¾	.....
..	..	2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	600	2	2	2	2	+ ⅛
12¼	5¾	10⅞	5⅛	9⅜	5⅛	25	Leonard Oil & Dev.	9,000	5	5⅛	5	5⅛	+ ⅛
27	20	27½	20	43⅞	20	N.P.	Lion Oil & Refining	1,900	26	27⅞	25⅛	25½	— 2½
46	30	59⅜	37	69⅛	48⅛	$25	Lone Star Gas	100	74	74	71⅛	71⅛	— 1¼
2⅞	1	2⅞	.80	1⅞	.50	1	Magdalena Syndicate	15,500	80	80	67	70	— 6
34	12½	52	12	48½	32	N.P.	Margay Oil	No sales.					
8	5½	12⅛	5	8	2¾	N.P.	Mexico-Ohio Oil	200	5⅛	5⅛	5⅛	5⅛	— ⅜
1¾	1⅛	1½	1	1¾	.76	$1	Mountain & Gulf	2,600	1⅜	1⅜	1⅛	1⅛	— ⅛
26	23	29¼	22¾	28⅞	19½	10	Mountain Producers	2,700	21¾	21¾	20½	21	— ⅝
6⅝	5	5⅞	4⅝	5⅝	4¼	5	New Bradford	1,600	4½	4½	4⅜	4⅜	— ⅛
..	..	16	9¼	11⅞	7⅛	1	New Mex. & Ariz.	3,000	8⅜	8⅜	7⅛	7¼	— ¼
..	..	12¾	9½	14¼	8½	N.P.	North Central Texas	No sales.					
10⅛	5⅞	9⅜	3¼	6	2⅛	N.P.	Pandem	6,700	3	3	2½	2⅝	— ⅜
12¼	11¾	12⅛	7	15⅝	8½	N.P.	Pantepec Oil	1,500	8⅝	9⅞	8⅛	8⅛	— ⅝
22¾	12	13½	5⅛	7¾	4⅞	N.P.	Pennok Oil	400	4⅝	4⅝	4⅜	4⅜	— ¼
17	8½	24⅜	7	18	4⅞	25	Red Bank Oil	No sales.					
30¼	12	15½	3½	12⅞	4⅛	N.P.	Reiter-Foster	1,900	7¼	7⅜	6⅛	6⅛	— 1¾
7	4½	7	4½	12	4⅛	N.P.	Ryan Consolidated	900	8¼	8¼	7⅞	8	— ⅛
10	7⅛	8	5¼	7¼	5½	$10	Salt Creek Cons.	1,200	5¼	5½	4⅞	4⅞	.....
35	24⅛	35½	27¼	35	23⅛	10	Salt Creek Prod.	4,300	25	25	23⅛	24⅛	— ⅞
6⅞	1¼	7	1¼	3½	1	5	Savoy Oil	No sales.					
27	7⅝	26½	17	22⅞	13	10	Tidal Osage	No sales.					
25¾	7⅝	23¾	15	21¼	13⅛	10	Tidal Osage, nonvoting	600	11½	11½	11⅛	11⅛	— ⅜
92	63½	92	63½	93¾	75	100	Transcontinental, pfd.	100	80	80	80	80	— 2
8	4½	7⅜	4¼	9⅛	4¾	5	Venezuelan Petrol	2,500	4¾	5¼	4⅝	4¾	— ¼
8⅛	5½	8	4¾	8¼	4⅞	$1	Woodley Petroleum	3,100	8¾	9⅛	8½	8½	.....
6½	6	6	1¾	8⅜	2⅛	25	Y Oil & Gas (new)	900	3¼	3¼	2¾	2⅞	— ⅜

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of New York Stock Exchange, Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low		Listed capital	Par value	Stocks—	Div. rate	Last paid	For week ended March 8 Sales	Open	High	Low	Last	Change
32⅞	24¼	37⅝	27⅝	43⅞	27⅛	(sh)	922,075	N.P.	Amerada Corp.	50cQ	Oct. 31, 28	2,100	31½	31¾	30⅛	31	— ¼
74	39⅞	82⅛	35½	85	51¼	(sh)	209,180	N.P.	American Republics Corp.	.....	.....	1,800	50⅛	52⅜	47⅛	49	— 1¼
60	44¾	50¼	35	53⅜	37½		$57,260,300	$25	Associated Oil	50cQ	Dec. 31, 28	80	44	44	43	43	— 1
128⅝	97	131⅜	104	66⅜	50		50,000,000	25	Atlantic Refining	25cQ	Dec. 15, 28	34,000	56⅝	58	54½	58	+ 1⅜
33½	23½	35½	20¾	53	20		35,194,000	25	Barnsdall Corp.	50cQ	Feb. 5, 29	69,000	40½	41	38½	41	+ 1
94¼	50	96¾	65	94⅞	68		20,785,400	100	General Asphalt	.....	.....	8,600	70¾	70¾	63	66	— 5½
72	50¼	175⅜	60⅛	167	79		25,000,000	100	Houston Oil	.....	.....	2,800	84	85¼	80⅛	85	+ 1
34	19⅝	32¾	17⅝	38⅜	21¾	(sh)	959,457	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 29	13,600	31⅛	32	30⅞	31	.....
12⅜	7½	12⅛	7⅝	39⅝	9		8,203,080	$10	Indian Refining	.....	May 31, 24	36,000	36¼	36⅝	33⅝	35⅛	— ⅞
25⅞	16½	37¾	20½	39¼	27⅜	(sh)	3,992,122	N.P.	Lago Oil & Transport	.....	May 1, 27	600	30	30	28½	30	+ ½
19⅝	12	18⅛	10	19¾	9¾	(sh)	1,237,078	N.P.	Louisiana Oil Refining	.....	.....	11,100	14¼	14⅞	13½	13⅞	— ⅝
28	16½	22¾	12	25½	12½	(sh)	330,000	N.P.	Maracaibo Oil	.....	.....	300	13¼	14¾	13⅜	14¾	+ 1¼
63⅜	49¼	58½	31	49¾	33	(sh)	2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	35,800	40⅜	40¼	37¼	39⅝	— ⅛
13⅜	6	9¼	3	73	4⅝	(sh)	945,939	N.P.	Mexican Seaboard	.....	Dec. 15, 20	64,400	48½	50	43½	48⅜	+ ⅝
37	20½	39⅜	25½	44½	25⅛	(sh)	1,357,461	N.P.	Mid-Continent Petroleum	50cQ	Feb. 15, 29	14,400	31⅝	32	31	31½	— ½
104¼	90	105	97	120½	103¼		$6,718,000	$100	Mid-Continent Petroleum pfd.	$1.75Q	Sept. 1, 28	No sales.					
2½	½	3¾	1⅝	7⅜	2⅜		24,298,850	10	Middle States	.....	July 1, 23	6,000	3⅞	4	3¾	4	.....
76½	56⅛	65⅞	40⅛	54⅞	38¼		$48,807,400	$50	Pan American P. & T.	.....	Oct. 20, 27	1,800	42	43¾	41⅛	43	.....
78⅜	56⅞	66⅜	40¼	58⅞	37¾		121,097,900	50	Pan American P. & T. B.	.....	Nov. 15, 24	30,800	42¾	44⅝	41	44	+ 1
46	30	37⅞	16¾	28⅜	15½	(sh)	400,000	N.P.	Pan American Western B	.....	Jan. 30, 27	700	16	15½	14½	14½	— 1½
32	4½	18⅞	8	21⅜	11½	(sh)	198,770	N.P.	Panhandle P. & R.	.....	.....	800	10	10	9½	9½	— ⅝
99⅜	51	83	54	108	70		$2,935,200	$100	Panhandle P. & R. pfd.	.....	July 2, 23	400	57	58	56	57⅛	+ 4⅝
57⅜	40	60¼	36¼	53⅞	35¼	(sh)	2,406,796	N.P.	Phillips Petroleum	37½cQ	Jan. 2, 29	8,100	38⅞	39	37½	38	— ⅞
....	....	1⅛	⅛	5¼	½		$29,622,925	$25	Pierce Oil Corp.	.....	.....	5,700	2½	2½	2¼	2⅜	— ⅛
7	2¼	5½	2½	7	3½	(sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	4,900	4¾	5	4⅜	4⅞	.....
60¼	48	55½	45⅝	68	46		60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	15,100	58⅜	58½	56	56½	— 1⅝
137½	122½	190	130¾	280	172		$101,250,000	$25	Prairie Pipe	.....	.....	13,900	59¼	59⅞	58	59	.....
20⅜	11	33⅞	16¾	29⅞	16		$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	600	20⅞	20⅞	19	19	— 2⅛
41⅜	30⅜	50	36⅞	49⅝	41		2,845,350	50	Producers & Refiners pfd.	.....	May 1, 25	90	40	40	40	40	— 1
31	25¼	33½	25	31⅝	19		75,959,350	25	Pure Oil Co.	25cQ	Dec. 1, 28	6,900	4⅞	25	23⅝	24⅞	.....
27½	22	28⅝	25⅜	56	23		47,025,000	$25	Richfield Oil	.....	Nov. 15, 28	22,100	43	43⅛	40⅛	40¾	— 1½
57⅜	47⅜	54½	44¼	64	44⅝	(sh)	611,303	13.40	Royal Dutch, N. Y. shares	50cQ	Jan. 10, 29	1,900	53⅛	53⅜	51⅜	52⅝	— 1
48⅝	40½	47⅞	41⅜	57½	40⅝	(sh)	£30,000,000	£1	Shell Transport & T.	$1.455	July 23, 28	No sales.					
31	24	31⅜	24⅝	39¼	23¼	(sh)	20,000,000	N.P.	Shell Union Oil	35cQ	Dec. 31, 28	21,100	27½	27½	26⅛	26⅜	— ¼
28⅝	15⅛	26⅜	14¼	27¼	18⅛		$8,357,000	$10	Simms Petroleum	10cQ	Dec. 15, 28	3,900	20	19½	18¼	19	— 1
24⅞	16¾	22⅜	15	46⅜	17⅜	(sh)	4,501,915	N.P.	Sinclair Consolidated	.....	.....	169,600	39	39	36¼	38½	— ½
99½	90	104½	97	110	102½		$16,604,600	$100	Sinclair Consolidated pfd.	$2Q	Nov. 15, 28	1,000	109¾	110	109¾	109¾	.....
37⅛	26⅝	37⅜	24⅛	42⅝	25		27,396,590	25	Skelly Oil Co.	50cQ	Dec. 15, 28	10,200	34½	34⅞	32⅞	34¼	— ¼
63⅝	51½	60¾	50⅜	80	53	(sh)	12,594,098	N.P.	Standard Oil of California	65½cQ	Dec. 15, 28	29,100	68	69⅞	65	67½	— ¾
46⅜	37½	41⅜	35¼	59⅜	37¾		$611,120,700	$25	Standard Oil of New Jersey	25cQ*	Dec. 15, 28	52,900	49	49⅞	48⅜	49⅛	— ⅛
47¼	30⅜	34⅛	29¾	44¼	28¾		427,973,275	25	Standard Oil of New York	40cQ	Dec. 15, 28	61,100	40¼	40	38	39¾	— ¼
41⅝	30⅛	34⅞	30	77	31½	(sh)	1,206,073	N.P.	Sun Oil	25cQ	Dec. 15, 28	1,500	57¾	59¼	57½	58	.....
5¼	1	6½	3⅛	14¼	2½	(sh)	1,267,000	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	13,900	7⅝	8⅜	7⅛	7½	— ⅛
58	48	58	45	74¾	50		$211,076,650	$25	The Texas Corporation	75cQ	Jan. 1, 29	31,100	50¾	59½	57¾	58¾	— ⅛
19½	12	18⅞	12	26⅝	12⅛		8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	29,100	21¾	21⅜	19⅝	20⅝	.....
39¼	27	29⅛	19	41½	19⅝	(sh)	2,168,410	N.P.	Tide Water Oil Co.	20cQ	Dec. 15, 28	900	31	31	29	29½	— 1½
103	87¼	90⅛	85	100⅛	86		$20,705,200	$100	Tide Water Oil Co. 5% pfd.	$1.25Q	Nov. 15, 28	1,400	91⅝	91⅝	90⅝	90⅝	— ⅜
27	20⅞	19¼	15⅜	25	14¾	(sh)	4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	16,400	19	19⅜	18¼	18⅛	— 1⅛
5½	3	10⅜	3¾	14¾	7¼	(sh)	3,742,029	N.P.	Transcontinental Oil	.....	.....	39,600	10⅛	10¾	9⅛	9½	— ⅝
58⅜	37¼	56½	39⅝	58	42¾		$94,798,100	$25	Union Oil of California	50cQ	Nov. 10, 28	4,900	49	50¼	48¼	49¼	+ ⅜
120⅜	84¾	127½	94	128¼	110		31,061,200	100	Union Tank Car Co.	$1.25Q	Dec. 1, 28	1,200	147½	148	136	139¼	— 8¾
30⅛	23½	34½	24½	44⅞	26	(sh)	356,000	N.P.	Warner Quinlan	50cQ	Jan. 2, 29	5,900	36	36½	34⅜	35½	— ½
29¾	25⅛	27½	20	38	20⅛	(sh)	490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 29	11,600	37	37	35⅝	36¼	— ¾
									Wilcox Oil & Gas	.....	.....	2,600	24½	26	23	24¼	— ¼

*Also extras.

STANDARD OIL STOCKS ON NEW YORK CURB

21	16	21⅝	17⅞	22⅜	14⅞		£4,126,460	£1	Anglo-American Oil	.....	June 6, 28	100	17½	17½	17¼	17¼	.....
....	....	3¾	¾	5	1¼	(sh)	500,000	N.P.	Atlantic Lobos	.....	.....	600	2⅛	2⅛	2	2⅛	.....
76	65	69	50	56½	44½		1,000,000	25	Borne Scrymser	$18.A.	Oct. 15, 28	200	42¼	42¼	42	42	— 2
59½	42	60	45	76	53		10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 28	200	68	68	67¾	67¾	— ¼
82½	65	126	76½	161	117½		3,000,000	25	Chesebrough Mfg.	$1Q	Dec. 28, 28						
25⅞	17½	22⅝	16¼	23	16		36,057,840	10	Continental Oil	.....	Dec. 15, 27	234,000	26	29	23⅛	27½	— ⅝
137	102	137	89	114	67		1,500,000	50	Cumberland Pipe Line	$1A	Dec. 15, 28						
63¾	43	68½	47	88	64⅛		5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	150	64¾	64¾	64½	64½	— 3½
32½	9⅞	13½	3½	13	4¼		16,000,000	100	Galena Signal Oil	.....	June 30, 25						
68½	52	68½	54	114¾	59¼		73,117,577	25	Humble Oil & Refining	30cQ*	Jan. 1, 29	6,900	91¼	97⅝	92⅞	97⅜	+ 4⅝
144½	125½	182	123¾	290½	176½		20,000,000	100	Illinois Pipe Line	10%S.A.	Dec. 15, 28	50	310	310	306	306	— 4
....	....	64¾	37¾	104	56¾	(sh)	6,458,267	N.P.	Imperial of Canada	25cQ	Dec. 1, 28	4,300	93⅞	93⅞	91¼	92¾	— 1¼
72½	58	94½	61	91⅞	74⅜		$5,000,000	$50	Indiana Pipe Line	$1Q	Feb. 15, 29	400	82	82¾	82	82½	.....
35½	28¾	39	28¼	55	35	(sh)	7,123,444	N.P.	International Petroleum	25c	Nov. 30, 28	200	54	53¼	52¾	52¾	— 1¼
20⅜	12½	24	13½	32⅜	19⅜		$6,363,350	12.50	National Transit Co.	25c	Dec. 15, 28	2,600	24½	24½	23⅜	24	— ⅝
51½	27¼	44½	31¼	75	38½		5,000,000	100	New York Transit	.....	July 15, 26	500	84	84	80	80	.....
80½	64	100	70	69	56½		2,000,000	50	Northern Pipe Line	$38.A.	Jan. 2, 29	100	60¼	58½	58½	58½	— 1⅞
67¾	55¾	67⅞	52	84	58½		60,000,000	25	Ohio Oil Co.	50cQ*	Dec. 15, 28	1,700	65½	65¾	64⅝	65½	— 1⅜
24¾	15	39	12	84	28		10,000,000	25	Penn Mex. Fuel	$1.25	Dec. 15, 28	800	33	33½	31	31	— 2
220	84½	201½	175½	220	167		4,000,000	100	Solar Refining	$58.A.	Dec. 20, 28	500	46¼	46½	45	45	.....
74½	61½	27¼	15½	19	15		1,000,000	10	Southern Pipe Line	$2	Dec. 1, 27	300	13	14	13	13⅞	+ ⅞
50	34½	41½	35	71⅞	36¾		2,000,000	25	South Penn Oil	50cQ	Dec. 31, 28	4,100	43⅜	44¼	42	42¼	— 1¼
56	47½	83	55½	102	70		3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Oct. 1, 28	250	67½	69	67½	67½	— ¾
70½	60½	81½	64⅝	95⅞	70⅞		228,415,463	25	Standard Oil of Indiana	62½cQ	Dec. 15, 28	34,700	87⅝	89¾	85½	88	+ ½
36½	16½	20⅞	14⅝	27¾	15		8,000,000	25	Standard Oil of Kansas	.....	June 16, 24	1,600	21⅝	21⅞	20½	21½	— ⅛
134⅜	108	130	111½	179¾	122¼		17,012,559	10	Standard Oil of Kentucky	$1Q	Dec. 31, 28	4,300	40⅜	40¾	39½	39¾	— ¾
51⅛	42	49½	40	54⅞	39⅞		4,559,850	25	Standard Oil of Nebraska	63cQ	Dec. 20, 28	600	46¾	47½	46½	46½	— ⅜
372	288	87½	72	134	71		14,000,000	25	Standard Oil of Ohio	62½cQ	Jan. 2, 29	750	116	118	112	114	— 2
21	15	21	14½	23½	16		861,000	25	Swan Finch Co.	.....	Nov. 1, 19	100	16½	16½	16½	16½	.....
109⅜	90¼	....	....	111	72		125,619,000	25	Vacuum Oil	75cQ	Dec. 20, 28	4,100	124	124	119½	121⅛	— ½

*Also extras.

029, or $6.03 a share on 200,000 ($50 par) shares, were the most satisfactory since 1922 when net was $1,744,396, or $8.72 a share. Recent declaration of $1 extra, in addition to the regular $1 dividend, indicates the company expects a continuance of increase in business. Disbursements to stockholders last year totaled $1,200,000, exceeding those of every year since 1923, when $1,350,000 was paid in dividends.

Continental Oil

Report of Continental Oil Co. and subsidiaries for the year ended December 31, 1928, shows profit of $3,347,690 after ordinary taxes, interest, depreciation, depletion, intangible drilling costs, etc., but before Federal taxes. This compares with net loss of $135,129 in 1927. Outstanding stock amounts to 3,645,242 shares of $10 par.

McLeod Oil

The balance sheet of the McLeod Oil Co., operating in the Turner Valley Field, as of December 31, showed total assets of $312,226.39 and liabilities of $311,138.48, leaving a credit balance of $1,087.91. The assets include current assets of $13,222.88, being $2,788.99 accounts receivable and $10,433.89 cash in bank; plant, equipment, etc., amounting to $237,005.28, including $88,455.80 purchased last year; oil lands and leases $56,558.37; and trucks, furniture, buildings, etc., amounting to $5,439.86. Lia-

(Continued on Page 151)

SUNDAY SHUT-DOWN PLAN IS SUCCESSFUL

(Continued from Page 30)

Wasutke:
No. 1 ..... 26 Swabbed 17 hrs., 53 water.
No. 2 ..... 225 Swabbed 18 hrs., 75 water.
No. 4 ..... 239 Swabbed 18 hrs., 300 water.
490

Total Earlsboro 6,151

Other Districts

M. Carter:
No. 1 ..... 67 Flowed on air 24 hrs.
No. 2 ..... 20 Pumped 24 hrs., 180 water.
No. 4 ..... 8 Pumped 220 water.
No. 5 ..... 32 Pumped 375 water.
No. 6 ..... 155 Pumped 200 water.
No. 7 ..... 6 Pumped 185 water, rods parted 5 hrs.
No. 8 ..... 8 Pumped 200 water.
302

E. Coker:
No. 1 ..... 1,585 On gas 23 hrs., took 1 hr. to kick off.
No. 2 ..... 2,590 On gas 24 hrs.
No. 4 ..... 1,878 On gas 24 hrs.
6,053

Cotcha:
No. 1 ..... 1,200 On gas 24 hrs.
No. 2 ..... 600 On gas 24 hrs.
1,800

D. Fife:
No. 1 ..... 890 On gas 24 hrs.
No. 3 ..... 20 Pumped 18 hrs.
910

Henry:
No. 1 ..... 302 Swabbed 24 hrs.
No. 2 ..... 190 On air 24 hrs.
492

D. Hotulke:
No. 2 ..... 180 Pumped.
No. 3 ..... 220 Pumped.
400

L. Jones:
No. 1 ..... 550 Pumped 100 water.
No. 2 ..... 150 Pumped 70 water.
No. 3 ..... 20 Pumped.
No. 4 ..... 255 Pumped.
975

Epaya:
No. 1 ..... 20 Pumped.

S. McNac:
No. 1 ..... 22 Pumped.

E. Murrow:
No. 1 ..... 80 Pumped.
No. 2 ..... 125 Pumped.
No. 3 ..... 85 Pumped.
No. 4 ..... 40 Pumped.
330

Wm. Stahl:
No. 1 ..... 590 On air 24 hrs.
No. 2 ..... 70 Pumped.
No. 3 ..... 690 On air 29 hrs., took 4 hrs. to kick off.
1,350

Walker:
No. 1 ..... 460 On gas 24 hrs.

Wallace:
No. 1 ..... 355 Flowed.

Total 13,476

Total Greater Seminole .. 18,777

FEBRUARY 24

Earlsboro District

I. Brown:
No. 1 ..... 375 Swabbed 24 hrs., 335 water.
No. 2 ..... 550 Swabbed 24 hrs., 265 water.
No. 3 ..... 406 Swabbed 12 hrs., 165 water, no gas 6 hrs, changed belt.
No. 4 ..... 5 Pumped, 261 water.
1,336

F. Bruner:
No. 1 ..... 142 Pumped 62 water; belt broken 4 hrs.
No. 2 ..... 32 Pumped 184, 62 water, changed belt 4 hrs.
174

N. Bruner:
No. 1 ..... 43 Swabbed, 560 water.
No. 2 ..... 850 On gas 24 hrs.
No. 3 ..... 40 Pumped, 450 water.
933

C. Cudjo:
No. 1 ..... 25 Pumped.

J. Davis:
No. 1 ..... 883 On gas 24 hrs.
No. 2 ..... 28 Flowed on air.
No. 3 ..... 13 Pumped.
No. 4 ..... 26 Flowed on air.
950

M. Davis:
No. 1 ..... 17 Pumped.
No. 2 ..... 22 Flowed on packer.
39

D. Davis:
No. 1 ..... 33 Flowed on air.
No. 2 ..... 26 Pumped, 120 water.
No. 3 ..... 409 Swabbed 24 hrs., 8 water.
468

G. Gibson:
No. 1 ..... 452 Swabbed 24 hrs., 204 water.
No. 2 ..... 160 Swabbed 24 hrs., 205 water.
No. 3 ..... 3 Pumped, 240 water.
No. 4 ..... 274 Swabbed 24 hrs. 218 water.
No. 5 ..... 150 Swabbed 24 hrs., 320 water.
No. 7 ..... 201 Pumped 24 hrs.
No. 8 ..... 175 Pumped.
1,415

G. Ahearn:
No. 1 ..... 1 Pumped.

J. Ingram:
No. 1 .... Pumped 73 water.
No. 2 ..... 79 Pumped, 70 water, fished rods 6 hrs.
No. 3 ..... 133 Flowed on air.
No. 4 .... Pumped 2 bbls. water.
No. 5 ..... 80 Pumped, cutting 3 per cent.
No. 6 .... Pumped 42 water.
No. 7 .... Pumped 188.
No. 8 ..... 36 Pumped 39 water.
328

N. Jackson:
No. 1 ..... 20 Pumped, 10 water.

S. Pack:
No. 1 .... Pulled tubing.
No. 1-4 ..... 31 Pumped, 2 water.
No. 2 ..... 7 Pumped 5.
No. 3 ..... 40 Pumped 7.
78

Peter:
No. 2 ..... 68 Pumped, 140 water.
No. 3 ..... 20 Pumped.
No. 4 ..... 5 Pumped.
93

N. Sango:
No. 1 ..... 42 Pumped.
No. 3 ..... 1,335 On gas 24 hrs.
1,377

Seboka:
No. 1 ..... 145 Swabbed 18 hrs., 154 water, changed line.

H. Sullivan:
No. 1 ..... 6 Pumped, 82 water.

Sullivan-Harjo:
No. 1 ..... 6 Pumped.
No. 2 ..... 20 Pumped.

Wasutke:
No. 1 ..... 125 Swabbed 24 hrs., 230 water.
No. 2 ..... 420 Swabbed 24 hrs., 75 water.
No. 4 ..... 345 Swabbed 24 hrs., 450 water.
694

Total Earlsboro 8,306

Other Districts

M. Carter:
No. 1 ..... 66 Flowed on air.
No. 2 ..... 22 Pumped.
No. 4 ..... 3 Pumped.
No. 5 ..... 40 Pumped.
No. 6 ..... 150 Pumped.
No. 7 ..... 4 Pumped.
No. 8 ..... 4 Pumped, ran rods 4 hrs.
289

Coker:
No. 1 ..... 1,345 On gas 23 hrs., trouble at plant.
No. 2 ..... 2,235 On gas 23 hrs.
No. 4 ..... 1,550 On gas 23 hrs.
5,130

Cotcha:
No. 1 ..... 705 On gas 23 hrs.
No. 2 ..... 325 On gas 23 hrs.
1,030

G. Fife:
No. 1 ..... 720 On gas 23 hrs.
No. 3 ..... 15 Pumped.
735

Henry:
No. 1 ..... 302 Swabbed 34 hrs.
No. 2 ..... 187 On air.
489

D. Hotulke:
No. 2 ..... 85 Pumped 10 hrs.
No. 3 ..... 255 Pumped 21 hrs., engine trouble 3 hrs.
320

L. Jones:
No. 1 ..... 390 Rods broken 4 hrs.
No. 2 ..... 105 Rods.
No. 3 ..... 20 Pumped.
No. 4 ..... 225 Pumped.
740

Kepaya:
No. 1 ..... 20 Pumped.

S. McNac:
No. 1 ..... 21 Pumped.

S. Marrow:
No. 1 ..... 70 Pumped.
No. 2 ..... 115 Pumped, changed cups.
No. 3 ..... 80 Pumped.
No. 4 ..... 35 Pumped.
298

Wm. Stahl:
No. 1 ..... 601 On air 24 hrs.
No. 2 ..... 125 Pumped.
No. 3 ..... 810 On air 24 hrs.
1,536

Walker:
No. 1 ..... 495 On gas 24 hrs.

Wallace:
No. 1 ..... 340 Flowed.

Total Seminole 11,443
Total Greater Seminole 18,724

FEBRUARY 26

Earlsboro District

I. Brown:
No. 1 ..... 373 Swabbed 23 hrs., 305 water.
No. 2 ..... 437 Swabbed 23 hrs., 290 water.
No. 3 ..... 417 Swabbed 23 hrs., 285 water.
No. 4 ..... 5 Pumped 140 water, pulled rods.
1,230

F. Bruner:
No. 1 ..... 144 Pumped 74 water, belt trouble 2 hrs.
No. 2 ..... 40 Pumped 170 water.
184

N. Bruner:
No. 1 ..... 21 Swabbed 23 hrs., 558 water.
No. 2 ..... 1,094 On gas 24 hrs.
No. 3 ..... 47 Pumped 442 water.
1,162

C. Cudjo:
No. 1 ..... 26 Pumped.

J. Davis:
No. 1 ..... 1,107 On gas 21 hrs., 3 hrs. to kick off.
No. 2 ..... 27 Flowed on air.
No. 3 ..... 17 Pumped.
No. 4 ..... 19 Flowed on air.
1,170

M. Davis:
No. 1 ..... 26 Pumped.
No. 2 ..... 18 Flowed on packer.
44

D. Davis:
No. 1 ..... 44 Flowed on air.
No. 2 ..... 20 Pumped 134 water.
No. 3 ..... 567 Swabbed 24 hrs., 10 water.
631

G. Gibson:
No. 1 ..... 367 Swabbed 23 hrs., 302 water.
No. 2 ..... 200 Swabbed 23 hrs., 300 water.
No. 3 ..... 11 Pumped.
No. 4 ..... 205 Swabbed 24 hrs., 295 water.
No. 5 ..... 200 Swabbed 24 hrs., 508 water.
No. 7 ..... 182 Pumped.
No. 8 ..... 151 Pumped.
1,313

G. Hearn:
No. 1 ..... 1 Pumped.

J. Ingram:
No. 1 .... Changed case and repaired engine.
No. 2 ..... 115 Pumped 75 water.
No. 3 ..... 140 Flowed on air.
No. 4 .... Pulled tubing to plug back to the Earlsboro sand.
No. 5 ..... 104 Pumped.
No. 6 .... Pumped 27 water.
No. 7 ..... 5 Pumped 190 water.
No. 8 ..... 34 Pumped 35 water.
398

E. Jackson:
No. 1 ..... 18 Pumped 16 water.

S. Pack:
No. 1 ..... 57 Pumped 15 hrs., ran tubing.
No. 1-A ..... 30 Pumped.
No. 2 ..... 6 Pumped.
No. 3 ..... 40 Pumped.
133

Peter:
No. 2 ..... 50 Pumped.
No. 3 ..... 15 Pumped.
No. 4 ..... 5 Pumped.
70

M. Sango:
No. 1 ..... 67 Pumped.
No. 3 ..... 1,447 On gas 24 hrs.
1,504

Seboka:
No. 1 ..... 227 Swabbed 21 hrs., 168 water, belt trouble.

N. Sullivan:
No. 1 ..... 9 Pumped 95 water.

Sullivan-Harjo:
No. 1 ..... 5 Pumped 5 water.
No. 2 ..... 15 Pumped.

Wasutke:
No. 1 ..... 120 Swabbed 24 hrs., 220 water.
No. 2 ..... 300 Swabbed 24 hrs., 75 water.
No. 4 ..... 225 Swabbed 24 hrs., 400 water.
645

Total Earlsboro 8,785

Other Districts

M. Carter:
No. 1 ..... 64 Flowed on air.
No. 2 ..... 20 Pumped.
No. 4 ..... 4 Pumped.
No. 5 ..... 40 Pumped.
No. 6 ..... 152 Pumped.
No. 7 ..... 3 Pumped, rods broken.
No. 8 ..... 9 Pumped.
292

E. Coker:
No. 1 ..... 1,265 On gas 19 hrs., 5 hrs. to kick off.
No. 2 ..... 2,360 On gas 23 hrs., 1 hr. to kick off.
No. 4 ..... 1,012 On gas 21 hrs., 3 hrs. to kick off.
4,637

Cotcha:
No. 1 ..... 775 On gas 23 hrs., 1 hr. to kick off.
No. 2 ..... 345 On gas 23 hrs., 1 hr. to kick off.
1,120

D. Fife:
No. 1 ..... 535 On gas 15 hrs., 9 hrs. to kick off.
No. 2 ..... 30 Pumped.
565

Henry:
No. 1 ..... 301 Swabbed 24 hrs.
No. 2 ..... 189 On air.
490

D. Hotulke:
No. 2 ..... 90 Pumped 20 hrs.
No. 3 ..... 290 Pumped 24.
380

L. Jones:
No. 1 ..... 540 Pumped.
No. 2 ..... 145 Pumped.
No. 3 ..... 20 Pumped.
No. 4 ..... 240 Pumped.
945

Kepaya:
No. 1 ..... 21 Pumped.

S. McNac:
No. 1 ..... 22 Pumped.

(Continued on next Page)

E. Murrow:		
No. 1	30	Cups off 4 hrs.
No. 2	75	Pumped.
No. 3	70	Pumped.
No. 4	36	Pumped.
	211	
Wm. Stahl:		
No. 1	563	On air 21 hrs., 3 hrs. to kick off.
No. 2	120	Pumped.
No. 3	499	On air 15 hrs., 9 hrs. to kick off.
	1,182	
Walker:		
No. 1	545	On gas 21 hrs.
Wallace:		
No. 1	305	Flowed.
Total	10,715	
Total Greater Seminole	18,397	

MARCH 3

Earlsboro District

I. Brown:		
No. 1	241	Swabbed 24 hrs., 210 water.
No. 2	463	Swabbed 22 hrs., 295 water, rep. eng.
No. 3	509	Swabbed 22 hrs., 325 water, changed line shaft.
No. 4	3	Pumped, 215 water, pulled rods six hrs.
	1,216	
F. Bruner:		
No. 1	131	Pumped, 70 water.
No. 2	40	Pumped 162 water.
	171	
N. Bruner:		
No. 1	16	Swabbed 24 hrs., 568 water.
No. 2	1,062	On gas 24 hrs.
No. 3	32	Pumped, 437 water.
	1,110	
C. Cudjo:		
No. 1	28	Pumped.
J. Davis:		
No. 1	1,297	On gas 24 hrs.
No. 2	35	Flowed on air.
No. 3	13	Pumped.
No. 4	18	Flowed on air.
	1,363	
M. Davis:		
No. 1	18	Pumped.
No. 2	23	Flowed on packer.
	41	
D. Davis:		
No. 1	35	Flowed on air.
No. 2	12	Pumped, 95 water.
No. 3	356	Swabbed 24 hrs., 6 water.
	403	
G. Gibson:		
No. 1	499	Swabbed 24 hrs., 215 water.
No. 2	250	Swabbed 24 hrs., 240 water.
No. 3	11	Pumped, 225 water.
No. 4	394	Swabbed 13 hrs., 200 water, changed line.
No. 5	250	Swabbed 22 hrs., 254 water, changed line.
No. 7	133	Pumped.
No. 8	126	Pumped.
	1,663	
G. Hearn:		
No. 1	...	Pumped.
J. Ingram:		
No. 1	...	Pumped, 73 water.
No. 2	132	Pumped, 130 water.
No. 3	128	Flowed on air.
No. 4	...	Plugging back to Earlsboro.
No. 5	66	Pumped, 3 water.
No. 6	...	Pumped, 89 water.
No. 7	2	Pumped, 117 water, changed cups.
No. 8	45	Pumped, 48 water.
	393	
N. Jackson:		
No. 1	24	Pumped.
S. Peck:		
No. 1	57	Pumped.
No. 1-A	26	Pumped.
No. 2	5	Pumped.
No. 3	38	Pumped.
	126	
Peter:		
No. 2	35	Pumped, 110 water, fished rods 10 hrs.
No. 3	...	Fished rods.
No. 4	5	Pumped.
	40	
H. Sango:		
No. 1	36	Pumped.
No. 3	1,445	On gas 24 hrs.
	1,481	
Seboka:		
No. 1	149	Swabbed 24 hrs., 210 water.
N. Sullivan:		
No. 1	4	Pumped, 80 water.
Sullivan-Harjo:		
No. 1	5	Pumped.
No. 2	18	Pumped.
Wasutke:		
No. 1	115	Swabbed 24 hrs., 260 water.
No. 2	277	Swabbed 24 hrs., 65 water.
No. 4	260	Swabbed 24 hrs., 38 water.
	652	
Earlsboro total	8,888	

Other Districts

M. Carter:		
No. 1	67	Flowed on air.
No. 2	20	Pumped.
No. 4	5	Pumped; rods parted twice.
No. 5	40	Pumped.
No. 6	100	Pumped.
No. 7	5	Pumped.
No. 8	12	Pumped.
	309	
E. Coker:		
No. 1	1,100	On gas 24 hrs.
No. 2	1,905	On gas 24 hrs.
No. 4	1,012	On gas 24 hrs.
	4,017	
Cotcha:		
No. 1	598	On gas 24 hrs.
No. 2	302	On gas 24 hrs.
	900	
D. Fife:		
No. 1	670	On gas 24 hrs.
No. 3	15	Pumped.
	685	
Henry:		
No. 1	315	Swabbed 24 hrs.
No. 2	189	On air.
	504	
D. Hotulke:		
No. 2	90	Swabbed 12 hrs.; C.O.
No. 3	295	Pumped.
	385	
L. Jones:		
No. 1	515	Pumped.
No. 2	135	Pumped.
No. 3	20	Pumped.
No. 4	190	Pumped; rods parted 4 hrs.
	860	
Kepaya:		
No. 1	20	Pumped.
S. McNac:		
No. 1	22	Pumped.
E. Burrow:		
No. 1	78	Pumped.
No. 2	135	Pumped.
No. 3	93	Pumped.
No. 4	47	Pumped.
	353	
Wm. Stahl:		
No. 1	615	On air 24 hrs.
No. 2	96	Pumped, changed cups.
No. 3	997	On air 24 hrs.
	1,708	
Walker:		
No. 1	466	On gas 24 hrs.
Wallace:		
No. 1	295	Flowed.
Total	10,524	
Gr. Seminole	18,328	

MARCH 5

Earlsboro District

Brown:		
No. 1	242	Swabbed 24 hrs., 210 water.
No. 2	410	Swabbed 24 hrs., 245 water.
No. 3	526	Swabbed 24 hrs., 335 water.
No. 4	4	Pumped, 256 water.
	1,222	
F. Bruner:		
No. 1	134	Pumped, 72 water.
No. 2	40	Pumped, 167 water.
	174	
N. Bruner:		
No. 1	15	Swabbed 24 hrs., 454 water.
No. 2	1,172	On gas 24 hrs.
No. 3	26	Pumped, 421 water.
	1,213	
C. Cudjo:		
No. 1	37	Pumped.
J. Davis:		
No. 1	1,189	On gas 24 hrs.
No. 2	22	Flowed on air.
No. 3	26	Pumped.
No. 4	28	Flowed on air.
	1,265	
M. Davis:		
No. 1	24	Pumped.
No. 2	23	Flowed on packer.
	47	
D. Davis:		
No. 1	44	Flowed on air.
No. 2	18	Pumped, 120 water.
No. 3	376	Swbd. 22 hrs., 4 wtr., engine trouble.
	438	
G. Gibson:		
No. 1	374	Swabbed 24 hrs., 300 water.
No. 2	210	Swabbed 24 hrs., 318 water.
No. 3	14	Pumped, 235 water.
No. 4	337	Swabbed 24 hrs., 212 water.
No. 5	215	Swabbed 24 hrs. 314 water.
No. 7	135	Pumped.
No. 8	131	Pumped.
	1,416	
G. Hearn:		
No. 1	1	Pumped.
J. Ingram:		
No. 1	...	Pumped 52 wtr., spooled line 9 hrs.
No. 2	127	Pumped 129 water.
No. 3	126	Flowed on air.
No. 4	...	Plugging back to Earlsboro.
No. 5	92	Pumped, 127 water.
No. 6	...	Pumped, 140 water.
No. 7	4	Pumped, 138 water.
No. 8	27	Pumped, 29 water.
	376	
N. Jackson:		
No. 1	25	Pumped, 17 water.
S. Pack:		
No. 1	68	Pumped, 2 water.
No. 1-A	31	Pumped, 2 water.
No. 2	7	Pumped, 5 water.
No. 3	43	Pumped, 8 water.
	149	
Peter:		
No. 2	39	Pumped, 160 water.
No. 3	15	Pumped, pulled rods 18 hrs.
No. 4	5	Pumped.
	59	
N. Sango:		
No. 1	47	Pumped.
No. 3	1,299	On gas 24 hrs.
	1,346	
Seboka:		
No. 1	140	Swabbed 24 hrs., 192 water.
N. Sullivan:		
No. 1	11	Pumped, 84 water.
Sullivan-Harjo:		
No. 1	11	Pumped.
No. 2	35	Pumped.
Wasutka:		
No. 1	120	Swabbed, 24 hrs., 275 water.
No. 2	320	Swabbed 24 hrs., 80 water.
No. 4	273	Swabbed 24 hrs., 390 water.
	713	
Earlsboro total	8,678	

Other Districts

M. Carter:		
No. 1	28	Flowed on air.
No. 2	26	Pumped, 85 water.
No. 4	3	Pumped, 120 wtr., rods part. 12 hrs.
No. 5	47	Pumped, 285 water.
No. 6	160	Pumped, 200 water.
No. 7	4	Pumped, 150 water.
No. 8	10	Pumped, 300 water.
	278	
E. Coker:		
No. 1	1,180	On gas 23 hrs., 1 hr. to kick off.
No. 2	1,860	On gas 23 hrs., 1 hr. to kick off.
No. 4	1,085	On gas 23 hrs., 1 hr. to kick off.
	4,105	
Cotcha:		
No. 1	275	On gas 24 hrs.
No. 2	400	On gas 24 hrs.
	1,125	
D. Fife:		
No. 1	605	On gas 22 hrs., 2 hrs. to kick off.
No. 3	23	Pumped.
	710	
Henry:		
No. 1	320	Swabbed 24 hrs.
No. 2	192	On air.
	512	
D. Hotulke:		
No. 2	130	Swabbed 18 hrs.; C.O. 6 hrs.
No. 3	270	Pumped.
	400	
L. Jones:		
No. 1	540	Pumped.
No. 2	95	Pumped, pulled rods 7 hrs.
No. 3	25	Pumped.
No. 4	235	Pumped.
	895	
Kepaya:		
No. 1	21	Pumped.
S. McNac:		
No. 1	24	Pumped.
E. Murrow:		
No. 1	77	Pumped.
No. 2	139	Pumped.
No. 3	90	Pumped.
No. 4	45	Pumped.
	351	
Wm. Stahl:		
No. 1	150	On air 7 hrs., plant trouble.
No. 2	45	Pumped.
No. 3	178	On air 9 hrs., plant trouble.
	373	
Walker:		
No. 1	562	On gas 24 hrs.
Wallace:		
No. 1	280	Flowed.
Total	9,636	
Gr. Seminole	17,313	

SOLUTION TREATMENT OF PRESSURE DISTILLATE

(Continued from Page 31)

near the run-down tank, thus giving the distillate a thorough wash to remove water soluble impurities before being stored.

Method Described

From storage the distillate was pumped to the continuous treaters. Sulphuric acid of 62 gravity to the amount of 7 pounds per barrel was introduced from a blow-case, intimately mixed in vertical orifice columns, and the mixture settled in the first vertical shell, from which a continuous stream of sludge separated. The second shell of the system settled the remainder of the sludge acid which was drawn off periodically and the oil traveled to the third and fourth shells, where it received two successive spray water washes, and from these to a surge tank. The oil was picked up from this tank by the second pump, the blue solution introduced from a blow-case, thoroughly mixed in orifice columns and settled in the fifth shell, from which it flowed to the treated distillate storage.

The alkaline sludge running from the fifth shell contained a black and a green precipitate and the liquor had a very faint blue color. When this liquor has a perceptible blue color the operator knows he is feeding too much blue solution to the system, and when it shows no trace of blue the reverse is evident. In this manner the reaction of the cupric ammonium hydroxide, although theoretically complicated, is easily controlled, and in this respect also it is more satisfactory than most other practical treatments.

The time and contact factors for this solution are perceptibly better than for a doctor treatment.

The steam distillation and fractionation of the vapors from the treated pressure distillate are subjects of common

knowledge and no special equipment or procedure is necessary in this instance.

The gasoline produced by this method is always of uniform quality, judging by the severe tests specified, probably because the control of the blue solution treatment can be so simply held uniform.

The raw pressure distillate is composed largely of members of the paraffin series (C_nH_{2n+2}), the olefin series (C_nH_{2n}), acetylene and diolefin (C_nH_{2n-2}), benzine series (C_nH_{2n-6}), naphthene series (C_nH_{2n-6} H_6), and compounds of sulphur. The sulphur content of the distillate is distributed among several combinations such as elementary sulphur (S), hydrogen sulphide (H_2S), thiopanes ($C_nH_{2n}S$), sulphones ($C_nH_{2n}SO_2$), alkyl sulphides ($C_nH_{2n+1})_2$, mercaptans ($C_nH_{2n+1}SH$), and alkyl sulphates ($C_2H_{2n+1})_2SO_4$.

Chain Compounds

The paraffins in the oil range from methane gas, which is held in the oil by absorption, to heavy solids which are only present in minute quantity in a well fractionated distillate. They are chain compounds of very stable construction, the molecule being saturated or strongly bonded together with the carbon atoms forming a strong foundation which is the general formula for normal paraffins. Under treating conditions these hydrocarbons are not reacted upon by either the acid of blue solution and are desirable constitutents of the final product. When the secondary and tertiary isomers of the series are present they are acted upon by any large excess of sulphuric acid, which condition must be avoided.

The olefins contain two atoms of hydrogen less than do the corresponding paraffins and so are called unsaturated hydrocarbons. This condition in the molecule causes a double bond to be formed between two of the carbon atoms, which however is, in itself, an unstable condition when compared with singly bonded atoms. Excess of sulphuric acid polymerises and absorbs some of the olefins. The polymerized olefins are desirable components although their formation undoubtedly lowers the gravity and raises the initial boiling point of the distillate, so the original olefins are more desirable than their polymers. The olefins absorbed by the acid form low boiling point esters which are run off with the acid sludge and which may be hydrolised into secondary alcohols by adding water. These reactions are used commercially in the production of isopropyl alcohol from petroleum products under patent protection by certain large refining companies. From the foregoing it is evident that the chief reason for avoiding highly concentrated or large excesses of sulphuric acid as a treating medium is to prevent the destruction of the highly desirable olefins. Due to the higher concentration of carbon atoms in the molecule of an olefin over the concentration in the corresponding paraffin molecule, the heat or power value of the olefins is greater, and the detonation of "knocking" under usual combustion conditions, is less than for the paraffins.

On the other hand, while the olefins are being formed under high pressure and temperature from a sulphurous oil, some of them take on a sulphur atom and form thiopanes, while others add hydrogen and sulphur to their structure to form alkyl sulphides and mercaptans.

The acetylenes and diolefins contain two less hydrogen atoms than the olefins and four less than the paraffins in the molecule. The acetylenes contain one triple bond between carbon atoms and the diolefins contain two double atoms, which characterize these hydrocarbons as being highly unsaturated. These compounds are very undesirable in the finished gasoline as they are the chief causes of coloration, gumming of engine parts, foul odor and instability during storage. Their satisfactory removal is imperative; but as some are absorbed by the acid, some polymerized to desirable aromatics, and some removed as organic salts of copper, this is possible.

Benzine or Aromatic Series

The benzine or aromatic series is not as unsaturated as might be expected from the formula because the carbon atoms are bonded together in ring formation. The molecule contains three pairs of double bonded carbon atoms and consequently a large number of substitution and addition compounds are possible. From this fact sulphonation must be prevented by the careful use of sulphuric acid during treatment. Again, due to the high concentration of the carbon atoms, the calorific value and lack of detonation effect of the gasoline can be attributed also to the presence of this series of hydrocarbons. The aromatics should not be used alone as a fuel for internal combustion engines, on account of their slow combustion and consequential carbon deposition, although the resultant smooth operation of the engine cannot be denied. The aromatics and paraffins burning together offset the objections attributed to each individually and constitute the ideal gasoline. Whereas, the olefins, diolefins, aromatics, naphthenes and sulphur compounds used to be grouped together as undesirables, they are now segregated and classified in the light of better knowledge.

The naphthenes, although they have the same formula as the olefins, are arranged in ring formation instead of the chain, and as their carbon atoms are singly bonded they are almost as stable as the paraffins. They are unaffected by sulphuric acid, but form soaps in the presence of excess or strongly alkaline solutions. Troublesome emulsions during treatment are caused by the formation of these soaps when treating lubricants. This difficulty can usually be modified by the use of mild alkalis, by salting out the soaps or by acidification and filtration. The naphthenes are desirable constituents and give no trouble during the treatment of pressure distillate.

The sulphur compounds are all highly undesirable, because during combustion some of these form corrosive acids and poisonous gases. They also cause coloration, sourness and bad odor in the finished product. During the treatment of the pressure distillate, hydrogen sulphide is removed by the preliminary water washes. Any cheap alkali, such as lime, may be used to remove the hydrogen sulphide quickly before the sulphuric acid treatment is introduced.

The thiopanes and alkyl sulphides are largely removed by the sulphuric acid treatment, but the mercaptans, which are the obnoxious and troublesome of the sulphur compounds, are but little affected by the acid. The blue solution, introduced after the acid sludge has been removed, in addition to completing the sulphur displacement reactions, also reacts with the mercaptans forming copper mercaptides. These mercaptides are soluble in the distillate and impart a yellowish green color to it. The final distillation temperature of the treated distillates decomposes these mercaptides into the original simple hydrocarbons and cupric sulphide which precipitates out and is run out of the still with the residual oil. Due to the instability of some of the hydrocarbons in the cracked still, certain organic acids are sometimes produced during the steam distillation and condensation of the gasoline. A very light wash with dilute caustic soda is sufficient to correct this condition and produce a very stable gasoline.

In conclusion it must be admitted that, even in these more enlightened days, the majority of the reactions occurring in a cracking process, and also in a treating process, are not well understood. It is well known, for instance, that the percentage of sulphur in each of a number of crude oils from different sources has no bearing whatsoever on how that sulphur will be distributed in the distillates and residuum, under cracking conditions. Another fact is that corrosion and treating difficulties are often worse when running low-sulphur crude than when running high-sulphur crude through a cracking system; although the opposite is usually the case.

When the refiner is confronted with treating problems, the best thing to do is to conduct practical, sensible experiments until the desired results are obtained; the theories can be explained at leisure.

STANDARD OF CALIFORNIA TO BASE PRACTICES ON A.P.I. ETHICS CODE

The Standard Oil Co. of California, largest marketer of gasoline and other petroleum products on the Pacific Coast, has announced in advertisements published in representative newspapers that the company in the future will conduct its marketing business based on the rules of the Code of Ethics which have been approved by the American Petroleum Institute.

The California Standard is the first of the major companies to adopt the rules pending their final approval by the Federal Trade Commission. The latter commission now has the code as adopted by the oil industry, under consideration and it is expected that final approval will be given in the near future. At that time the rules of the code will be adopted by the industry generally.

The action of the Standard of California is particularly significant at this time, due to the demoralized retail market conditions in the southern part of California. K. R. Kingsbury, president of the company, has taken an active part in the formation of the code. He was chairman of the A.P.I. regional committee for the West Coast and is now a member of the general committee for the entire industry.

ANNOUNCEMENT

TO THE PUBLIC:

Competition in marketing refined products of petroleum has developed practices which are neither fair to the industry nor to the consuming public. The industry is entitled to a reasonable profit, and the consumer is entitled to a fair price, adequate service and products of good quality. The law does not permit competitors in the industry to agree upon prices, but it likewise does not permit unfair methods of competition.

The American Petroleum Institute, by Committees representing the entire petroleum industry throughout the United States, has adopted a Code of Practices for Marketing Refined Petroleum Products which defines what are fair and what are unfair methods of competition in the petroleum industry.

The Standard Oil Company of California will henceforth observe principles and practices set forth in said American Petroleum Institute Code, and will carry on its business of selling and distributing refined petroleum products, not only in strict accordance with the letter, but also in the spirit of that Code.

Among the numerous principles and practices set forth in the Code are the following:

All refiners and distributors shall conspicuously post, at each point from which they make delivery, the several posted prices of gasoline and kerosene for each class of delivery for such deliveries at the time of delivery.

No seller shall make any deviation from his posted prices by means of rebates, allowances, bonuses, concessions, benefits, unusual credits, scrip books or any plan, device or other scheme which may directly or indirectly permit the buyer to obtain gasoline or kerosene at a lower net cost to him, or lower his cost of doing business, or lessen his investment in his facilities or equipment.

No refiner or distributor shall knowingly induce, attempt to induce, or assist a party to break an existing written contract for the sale of petroleum products between that party and another.

STANDARD OIL COMPANY OF CALIFORNIA

PANHANDLE FIELDS

(Continued from Page 39)

made 25 bbls. at 1,815-17½ feet. E. S. Easton's No. 1 Ancell was dry and abandoned at 865 feet. Humble Oil & Refining Co.'s No. 15 Taylor made 40 bbls. at 1,477-88 feet. Riner & Omohundro's No. 1 Michie made 125 bbls. at 1,778-83 feet. J. G. Rowe and others' No. 1 Waggoner Brothers made 55 bbls. in 30 hours at 1,293-1,300 feet. Red River Oil Co.'s No. 31 Bywaters was dry and abandoned at 2,150 feet.

Young County

L. G. Bradstreet's No. 4 Snider was drilled to a total depth of 575 feet, and made 15 bbls. after having an oil show at 569-74 feet. Bradstreet's No. 5 Snider made 20 bbls. at 565-75 feet. Bratcher's No. 1 Edwards made 40 bbls. at 437-56 feet, No. 2 Edwards 55 bbls. at 434-61 feet, No. 1 Prideaux 35 bbls. at 446-61 feet, No. 2 Prideaux 30 bbls. at 458-85 feet. Goldsmith's No. 1 Bishop was dry and abandoned at 1,007 feet. May Camp Drilling Co.'s No. 2 Prideaux made 10 bbls. at 563-69 feet. Panhandle Refining Co. and others' No. 14 Prideaux-C made 6 bbls. at 652-60 feet. Robertson Drilling Co.'s No. 2 Gillmere made 66 bbls. at 564-85 feet. Steed & Gaus' No. 5 Snider was dry and abandoned at 625 feet. Their No. 6 Snider made 40 bbls. at 584-89 feet. Their No. 7 Snider made 30 bbls. at 581-95 feet. Their No. 8 Snider made 35 bbls. at 578-600 feet. Their No. 9 Snider made 32 bbls. at 545-69 feet and was drilled to a total depth of 582 feet. Their No. 10 Snider was dry and abandoned at 648 feet. Their No. 11 Snider made 20 bbls. at 589-96 feet and was drilled to a total depth of 615 feet. Their No. 12 Snider made 25 bbls. at 571-76 feet. Wo-Mac Oil Co.'s No. 8 Stewart made 10 bbls. at 785-802 feet. Moutray Oil Co.'s No. 1 Ackers was dry and abandoned at 4,515 feet. Pemeta Oil Co.'s No. 3 Graham was dry and abandoned at 2,224 feet.

WEST TEXAS FIELDS

(Continued from Page 40)

Jones County	75	6,020
Loving County	9	619
Mitchell County	142	2,553
Pecos County	287	86,421
Reagan County	240	18,453
Runnels County	3	140
Scurry County	5	31
Upton County	265	13,160
Ward County	2	80
Winkler County	557	171,148
Total this week	2,215	386,878
Total last week	2,189	388,395
Difference	26	1,517

WEST TEXAS COMPLETIONS

Crane County

Gulf Production Co.'s No. 58 McElroy, 2,102 feet from north and 1,980 feet from east line Section 200, Block F, C. S.D.&R.G.N.G.R.R. Survey, had an initial production of 95 bbls. in 18 hours after having been shot with 200 quarts at 2,745-2,811 feet and drilled to a total depth of 2,870 feet.

Concho County

Duffey & Leffbourrow's No. 1 Hill, 660 feet from north and 1,980 feet from west line, Section 8, Block 70, was dry and abandoned at 2,142 feet.

Crockett County

Anderson & Williams' No. 1 University was dry and abandoned at 2,618 feet.

Fisher County

Midwest Exploration Co.'s No. 1 Newman, center of east 80 acres of SW, Section 44, Block 1, was dry and abandoned at 3,300 feet.

Howard County

Howard Oil Co.'s No. 1 Abrams, 990 feet from north and 1,170 feet from west line of Section 5, Block 32, T-2-S, topped the lime at 2,185 feet, topped the pay at 2,201 feet, was drilled to a total depth of 2,256 feet and had an initial production of 62 bbls. hourly. Pure Oil Co.'s No. 11 Chalk, 660 feet north and 70 feet west of No. 5, Section 125, Block 29, topped the pay at 1,678 feet, was drilled to a total depth of 1,701 feet and had an initial production of 28 bbls. hourly. Taylor-Link Oil Co.'s No. 2 Abrams, 150 feet from south and 1,980 feet from west of Section 3, Block 32, had an initial production of 174 bbls. in 14 hours after having a 24-quart shot at 2,267-2,345 feet and being drilled to a total depth of 2,348 feet. Moody Oil Corp.'s No. 7 Roberts-B made 226 bbls. at 2,600-77 feet.

Pecos County

George Anderson's No. 1 University, 1,110 feet from south and west of NE, Section 11, Block 17, had an initial production of 3,500,000 feet of gas at 1,960-97 feet and an oil show at 1,279-1,964 feet. California Co.'s No. 7, Lease No. 1, Smith, 998 feet from south and 1,738 feet from west line, Section 23, Block 194, topped the lime at 1,655 feet, topped the pay at 1,710 feet, was drilled to a total depth of 1,867 feet and had an initial production of 115 bbls. hourly. California Co.'s No. 1 Smith, Lease No. 4, 1,-010 feet from north and east lines of Section 15, Block 194, was dry and abandoned at 1,786 feet.

Jones County

Phillips Petroleum Co.'s No. 3 Vestal, 330 feet north and 990 feet west of SE cor. NW, Section 18, Block 19, T.&P.R. R. Survey, was dry and abandoned at 2,577 feet. Its No. 5 Joe Winters, topped the lime at 2,445 feet, topped the pay at 2,460-70 feet and had an initial production of 50 bbls. The Texas Company's No. 5 Carter, located 2,064 feet north and 330 feet east of southwest corner of L. Carter's 173.5-acre tract on SE cor. Section 13, Block 19, T.&P. Survey, made 175 bbls. at 2,477-2,507 feet.

Winkler County

V. T. Bolin's No. 2 Brown-Altman, 1,-890 feet from north and 2,100 feet from west of Section 4, Block B-5, was abandoned at 210 feet. Empire Gas & Fuel Co.'s No. 3 Leck-A, located 330 feet south and 990 feet west of Section 3, Block 74, P.S.L., had an initial production of 100 bbls. daily at 3,125-95 feet. Humble Oil & Refining Co.'s No. 4 Hendricks-C, located 2,200 feet south and 330 feet west of Section 10, Block B-12, P.S.L., topped the lime at 2,490 feet, topped the pay at 2,835 feet, was drilled to a total depth of 2,904 feet and had an initial production of 380 bbls. hourly. Its No. 7 Hendricks-C, Lease 2, made 200 bbls. hourly at 2,873 feet. Its No. 8 Hendricks-C, Lease 2, located 440 feet north and 1,-650 feet west of Section 10, Block B-12, topped the lime at 2,490 feet, topped the pay at 2,934 feet, was drilled to a total depth of 2,977 feet and had an initial production of 130 bbls. hourly. Prairie Oil & Gas Co.'s No. 6 Cowden, 440 feet south and 990 feet west of Section 3, Block B-12, had an initial production of 144 bbls. hourly, 5 per cent water at 2,-908-17 feet. Its No. 1 Daugherty made 55 bbls. hourly at 3,130-87 feet.

DAILY AVERAGE PRODUCTION BY LEASES

WINKLER COUNTY
Week ending March 5
HENDRICKS POOL

Company, farm, sec., blk.—	Wells	Prod.
Amerada Pet. Corp.:		
Cowden, 3, B-12	3	1,140
Atlantic O. P. Co.:		
Hendricks-A, 34, B-5	8	1,465
Hendricks-B, 44, 26	4	994
Hendricks-D, 29, B-5	8	3,099
Hendricks-E, 41, B-5	6	4,894
Hendricks-G, 40, 26	7	1,853
Hendricks-H, 28, B-5	1	56
Atlantic and Collett:		
Hendricks-F, 40, 26	13	1,740
Bankers Prod. Co.:		
Hendricks, 30, B-5	1	731
California Co.:		
Hendricks, 29, B-5	8	1,262
Cranfill & Reynolds:		
Hendricks-A, 28, B-5	2	161
Hendricks-B, 35, B-5	1	98
Hendricks-C, 33, 26	2	265
Hendricks-D, 33, 26	1	....
Hendricks-E, 33, 26	2	932
Cranfill & Texon:		
Hutchings, 47, 26	1	90
Culberson Bros.:		
Hendricks, 40, B-5	1	93
Eastland Oil Co.:		
Hendricks, 33, B-5	2	431
Hendricks-B, 35, B-5	1	253
Gulf Prod. Co.:		
Hendricks-A, 34, B-5	13	4,199
Hendricks-B, 45, 26	11	7,920
Hendricks-C, 40, B-5	6	2,290
Hendricks, 44, 26	2	729
Cowden, 3, B-12	2	1,209
Humble Oil & Ref. Co.:		
Hendricks-A, 34, B-5	17	6,341
Hendricks-B, 29, B-5	6	1,516
Hendricks-C, 32, 26	8	855
Hendricks-D, 47, 26	7	891
Hendricks-C, 10, B-12	4	1,902
Independent Oil & Gas:		
Hendricks-A, 34, B-5	8	1,495
Howe-B, 44, 26	2	88
McCabe, 36, B-5	2	369
Hendricks, 42, B-5	1	17
Vardeman-B, 41, B-5	6	1,074
Magnolia Pet. Co.:		
Hendricks, 29, B-5	8	912
Marland Oil Co.:		
Hendricks, 33, 26	4	1,218
Hendricks-A, 29, 26	2	212
Hendricks-B, 34, 26	2	425
May Prod. Co.:		
Hendricks, 34, 26	1	....
American Maracaibo:		
Hendricks-A, 28, B-5	1	114
Hendricks-B, 28, B-5	1	202
Mining & Eng. Co.:		
Hendricks, 10, B-22	1	201
Murchison & Cranfill:		
Hendricks-A, 35, B-5	3	1,195
Hendricks-B, 35, B-5	3	814
Hendricks-C, 35, B-5	1	32
Hendricks-H, 33, 26	1	1,908
Hendricks-I, 47, 26	2	687
Prairie Oil & Gas Co.:		
Hendricks, 40, 26	6	2,536
Cowden, 3, B-12	5	5,424
Pure Oil Co.:		
Hendricks-A, 41, B-5	11	2,326
Hendricks-B, 34, B-5	13	4,573
Hendricks-C, 45, 26	14	9,288
Republic Prod. Co.:		
Hendricks-A, 45, 26	6	2,690
Hendricks-B, 41, B-5	5	1,942
Hendricks-C, 42, B-5	5	405
Shell Pet. Corp.:		
Hendricks-A, 45, 26	6	1,682
Hendricks-B, 28, B-5	5	1,297
Hendricks-C, 29, B-5	8	2,871
Hendricks-D, 41, B-5	6	626
Hendricks-E, 49, B-5	3	1,047
Hendricks-F, 46, 26	8	2,482
Hendricks-G, 39, 26	1	79
Shell-The Texas Company:		
Cowden-A, 3, B-12	6	1,567
Hendricks, 45, 26	6	2,395
Hendricks-A, 29, B-5	11	4,392
Hendricks-B, 40, 26	6	1,054
Hendricks-C, 40, 26	6	2,744
Hendricks-D, 40, 26	6	1,052
Hendricks-E, 40, 26	4	903
Skelly Oil Co.:		
Hendricks, 40, 26	12	9,291
Hendricks-B, 39, 26	2	24
Hendricks-C, 39, 26	1	730
Southern Crude Oil Purchasing Co.:		
T-67 Hendricks-A, 42, B-5	3	193
T-67 Hendricks-3-A, 4, B-12	4	452
T-67 Hendricks-B, 44, 26	5	750
T-67 Hendricks-3-B, 33, 26	5	584
T-67 Hendricks-C, 33, B-5	5	818
T-67 Hendricks-2-D, 28, 26	4	880
T-67 Hendricks-E, 42, B-5	4	142
T-67 Hendricks-F, 33, B-5	4	746
T-68 Hendricks-3-A, 33, B-5	3	163
T-68 Hendricks-B, 46, 26	2	165
T-88 Hendricks-A, 44, 26	6	1,033
T-88 Hendricks-B, 4, B-12	4	1,525
T-88 Hendricks-C, 29, B-5	7	931
T-88 Hendricks-D, 4, B-12	5	2,771
T-88 Hendricks-H, 28, B-5	6	1,355
T-88 Hendricks-I, 30, B-5	7	2,136
T-88 Hendricks-J, 30, B-5	5	1,936
T-88 Hendricks-K, 41, 26	5	1,281
T-88 Hendricks-L, 4, B-12	4	1,110
T-88 Hendricks-M, 33, 26	30	14,933
T-88 Hendricks-N, 28, 26	5	1,413
T-88 Hendricks-O, 28, 26	2	397
T-88 Hendricks-P, 28, 26	1	233
T-88 Hendricks-Q, 27, 26	1	388
T-88 Hendricks-R, 27, 26	2	1,175
T-88 Hendricks-S, 34, 26	4	1,034
T-88 Hendricks-T, 34, 26	6	903
T-88 Hendricks-U, 41, 26	7	1,592
T-88 Hendricks-V, 29, 26	1	118
T-88 Hendricks-W, 5, B-12	1	353
T-89 Hendricks-A, 35, B-5	3	176
T-89 Hendricks-B, 35, B-5	2	436
T-89 Hendricks-C, 35, B-5	3	892
T-89 Hendricks-D, 35, B-5	1	168
T-89 Hendricks-E, 40, B-5	2	107
T-89 Hendricks-F, 40, B-5	1	98
T-89 Hendricks-H, 46, 26	1	46
T-89 Hendricks-I, 10, B-12	2	843
T-89 Hendricks-J, 9, B-12	2	1,425
T-90 Hutchings, 47, 26	1	111
T-264 Hendricks, 5, B-12	1	off
Texon Oil & Land:		
Hendricks-A, 41, B-5	6	795
Hendricks-B, 45, B-5	5	1,025
Winkler O. P. Co.:		
Hendricks, 33, 26	1	104
Grand total Hendricks Pool	538	169,528

LECK AREA

Atlantic-Kesslar & Logan:		
Leck, 3, 74	2	628
Amerada Pet. Corp.:		
Leck, 3, 74	2	750
Empire G. & F. Co.:		
Daugherty, 3, 74	3	739
Magnolia Pet. Co.:		
Scarborough, 1, C-22	1	117
Shell and Llano Oil:		
Scarborough, 1, C-22	2	78
Shell and Danciger:		
Leck, 3, 74	2	258
Prairie Oil & Gas Co.:		
Daugherty, 3, 74	1	512
Warner-Quinlan:		
Leck, 3, 74	1	427
Total Leck Pool	14	3,509

O'BRIEN POOL

Marland Oil Co.:		
Tobe Morton, 10, B-12	2	339
Wentz Oil Corp.:		
Tobe Morton, 10, B-12	1	132
Richardson et al:		
Stockton, 50, F	1	259
Total O'Brien Pool	4	730
Grand total Winkler County	556	173,767

PECOS COUNTY
YATES POOL
Week ending March 5

Company, lease—	Wells	Prod.
California Co.:		
Yates—Lease 1	17	7,508
Smith—Lease 1, Sec. 27	3	471
Smith—Lease 1, Sec. 23	6	1,520
Smith—Lease 1, Sec. 21	2	650
Smith—Lease 2	2	156
Smith—Lease 3	12	1,886
Tippett—Lease 1	1	40
Cosby Drilling Co.:		
Smith	1	314
Gulf Prod. Co.:		
All leases	32	11,605
Humble Oil & Ref. Co.:		
M. A. Smith	10	1,461
Smith-B	5	792
Kirby Pet. Co.:		
Tippett	2	60
Kirby Pet. and Edson:		
Tippett	1	205
Marland Oil Co.:		
Yates-A	8	594
Matador Oil Co.:		
Smith	2	1,321
Mazda & Savoy:		
Smith	3	660
McMan Oil & Gas Co.:		
Smith-A	1	718
Smith-B	4	1,037
Smith-C	4	863
Tippett	2	223
Richardson	1	67
McMan and Marland:		
Yates	16	3,900
Mid-Kansas and Transcon.:		
Yates-A	23	12,038
Yates-B	27	5,300
Yates-C	11	4,210
Yates-D	6	6,258
Yates-E	1	89
Yates-F	4	669
Yates-G	4	933
Yates-H	7	5,204
Smith	3	1,238
Smith	18	2,705
A. W. Hawse:		
Pecos River Bed	7	750
Pecos Valley Oil Co.:		
Fee, Sec. 22, Blk. 26	2	130
Phillips Pet. Co.:		
Smith	1	70
Red Bank Oil Co.:		
Smith	5	503
Shell Pet. Co.:		
Tippett	11	2,144
Smith	9	797
Smith-B	1	705
Smith-D	3	453
Smith-E	1	26
Simms Oil Co.:		
Smith	7	5,350
Skelly Oil Co.:		
Tippett	1	89
Grand total Yates Field	287	85,762

INTERESTING MEETING OF GEOLOGISTS PLANNED

(Continued from Page 34)

United States. Results of study of this area, which has received much attention since development of the West Texas oil fields began, will be presented in the symposium.

Other Subjects Covered

Papers on geophysical prospecting, developments in drilling practice, structural geology, the situation in Venezuela, paleontology and general subjects have places on the program arranged by R. A. Liddle, chairman of the program committee.

Meetings will be held by the Society of Economic Paleontologists and Mineralogists concurrently with those of the geological association. Indications early this week pointed to an attendance of about 500 women. Entertainment features arranged by the Entertainment Committee, J. Earle Brown, chairman, and the Ladies' Committee, C. P. Watson, chairman, include a complimentary luncheon for women at the Fort Worth Club Thursday and a bridge luncheon to be held Friday at River Crest.

There will be a dance Thursday evening. On Friday afternoon the annual golf tournament for the Bostick trophy will be played. A rodeo and barbecue have been arranged for Friday evening. Officers for the ensuing year will be elected at the closing session Saturday.

MERGE NEW ORLEANS HOLDINGS WITH SHELL

(Continued from Page 138)

States in order to secure more efficient operation in all phases of the oil business.

The Shell Petroleum Corp. (formerly Roxana) has its main offices in St. Louis. The company has large producing properties in the Mid-Continent with a major pipe line system connecting to its refineries located at East Chicago, Ind., Wood River, Ill., and Arkansas City, Kan. The corporation also is building a 20,000-bbl. refinery on the Houston Ship Channel and a pipe line now under construction will connect this refinery to West Texas production. This pipe line will have a capacity of from 35,000 to 40,000 bbls. daily so that if needed the line can furnish crude oil to Shell refineries in addition to the one being built at Houston. The New Orleans company properties will be operated from division headquarters at New Orleans.

The Shell Union Oil Co. also recently purchased the New England Refinery Co. in Massachusetts and has organized a marketing subsidiary to operate the company's properties in the eastern states. With the Shell Co. of California the Dutch-Shell group now have subsidiary companies operating under the name of Shell covering the greater part of the United States.

NEW PLANTS CONSIDERED IN NEW MICHIGAN FIELD

(Continued from Page 138)

making an investigation of conditions but as yet has not made any announcement regarding its plans.

The Hughes Oil Co. of Chicago is said to have agreed to build a 3,000-bbl. refinery near the field provided the producers through contracts assure it an adequate supply of crude oil. This proposition is now being investigated. E. L. Hughes of Chicago is the head of the Hughes company.

Chicago capital also is interested in proposition to resume operations at the refinery of the Interocean Oil Co. located at McCook, Ill. This proposition also is under consideration by representatives of the Michigan Oil and Gas Association. The Johnson Oil & Refining Co. has been investigating a refinery project in Michigan for several weeks.

VAUGHN WITH VISCOSITY OIL

CHICAGO, Mar. 9.—Roy Vaughn, former manager of the Chicago district, Marland Refining Co., is now sales manager of the Viscosity Oil Co. of this city, well-known compounders of all kinds of lubricating oils. The Viscosity Oil Co., although a long established concern, has never had a wholesale department. Will James, former Iowa representative for the Marland Co., will travel that State for the Viscosity Oil Co.

KEROSENE ADVANCES IN OKLAHOMA MARKET

(Continued from Page 28)

made at Mid-Continent refineries including the programs now under way and the new plants in West Texas, it is conceded that it will be relatively easy to flood the market with excess gasoline provided the necessary crude oil is freely available.

With a knowledge of this condition many Oklahoma refinery executives are keeping in close touch with the efforts being made to curtail crude oil production in the areas where the large flush production is being obtained. They feel that the success or failure of these efforts will determine their market over the next six months.

Kerosene and Distillates

The strength in the kerosene market previously mentioned brought the 41-43 water white grade to a low of 5⅞ cents the first of the week with a majority of the trade quoting 6 cents to the trade with a steady movement reported. The 42-43 grade was selling at a low of 6¼ cents with a price range of 6½ cents. Quotations over the next 30 days are higher than the prevailing spot market.

Several of the larger refiners in Oklahoma, Kansas and other Mid-Continent points will not have any kerosene to offer on the spot market over the next 60 days when the "spring" demand will be under way. In fact at least two or three companies are in position similar to that of the Sinclair company during the past week and will be compelled to purchase from other refiners. These refiners have a heavy kerosene demand through their own stations and regular jobber trade.

This limits the spot supply largely to the smaller refiners who do not have their own marketing facilities. Some of these companies do not have any kerosene storage having moved their output currently during the winter months.

Although the attitude toward the kerosene market is one of optimism a note of warning comes from some of the jobbing trade. It is pointed out that at present the kerosene price at Mid-Continent refineries is approximately 85 per cent of the prevailing price for U. S. Motor gasoline. Although kerosene prices in relation to gasoline have been relatively high for the past three years the 85 per cent relationship is unusual.

It is pointed out by the jobbers that kerosene tank wagon prices are near a parity with retail gasoline prices when the tax is eliminated from the latter price. Most of the states do not require tax payment on gasoline used for agricultural purposes. This reduces the retail price from 2 to 5 cents a gallon. With this close price relationship many farmers prefer to use gasoline in their tractors instead of kerosene. By buying large quantities of gasoline in some cases they are able to purchase on a tank wagon basis. This also adds to the attractiveness of gasoline as a fuel for tractors. Obviously this situation tends to reduce the domestic requirements for kerosene.

Natural Gasolines

Natural gasoline prices were fairly steady throughout the week. Low priced material made its appearance several times in the Oklahoma and Texas market but it was quickly absorbed by buyers. The strictly A and AA grades were the strongest of the five grades.

On Tuesday the general market on these two grades was 6¾ to 7 cents. Several sellers believe that prices will be higher later in the month and were refusing shipments over the month at these spot prices. Grade BB was more freely available at 5½ to 5¾ cents and grade C on Tuesday was quoted at 5 to 5¼ cents.

Gasolines and Naphtha

According to the reports of representative refiners in Oklahoma on which the weighted average prices are based no sales to the jobbing trade on U. S. Motor gasoline were made on Monday under 7 cents. The prices ranged as high as 7¼ cents. The prices on the higher gravity gasolines also indicated firmness in the market.

The naphtha movement to the regular trade is steady with little activity on Monday and Tuesday in the spot market.

Fuel Oils and Gas Oils

Gas oils are strong and the low on the 32-36 grade in Oklahoma is now 3 cents with a price range up to 3½ cents for furnace oil grades.

The high gravity fuel oils are from 2½ to 10 cents a barrel lower, although the supply in Oklahoma is limited. The lower gravity grades or low cold test are firm and hard to find for prompt shipment.

Lubricants and Wax

Practically all the lub oil manufacturers were in attendance at the annual meeting of the Western Petroleum Refiners Association the first of the week. The manufacturers have under consideration a co-operative advertising program aimed to increase the demand for lubricants made from Mid-Continent crude oils. The manufacturers have felt for some time that their neutral oils and cylinder stocks were priced too low in comparison to oils from other sections.

Prices on lubricants and wax were unchanged during the past week.

OHIO GAS AND OIL MEN IN ANNUAL CONVENTION

COLUMBUS, Ohio, Mar. 9.—Necessity of conserving the natural gas supply in the eastern fields through expansion of the use of mixed gas, was the point stressed in virtually every major speech made at the annual convention of the Ohio Gas and Oil Men's Association, held here March 6 and 7. More than 1,000 members and guests attended.

The convention was opened by Mayor James J. Thomas of Columbus, with address of welcome. At the close of the day the crowd had grown to around 600 delegates. Harry J. Hoover of Cincinnati, who spent years in the natural gas business, made the response, which was followed by the address of the President of the Association, John J. McMahon of Cleveland.

The report of the Secretary-Treasurer, William H. Thompson, shows the association to be in good shape, and that close to 200 new members were taken in during the opening day.

H. C. Blackwell of the Union Gas and Electric Co. of Cincinnati, gave a very interesting address on "Mixed Gas," much enjoyed by the attendance, and which closed the main addresses for the opening day outside of three closed meetings, in separate rooms, one being on "Production of Natural Gas," under the leadership of J. G. Hanks, superintendent East Ohio Gas Co. of Cleveland; "Distribution of Natural Gas," under the leadership of James F. Curry, general manager, Columbus Gas & Fuel Co., Columbus, Ohio, and "Accounting Section," under the leadership of L. A. Seyfert, assistant treasurer, Ohio Fuel Gas Co., Columbus, Ohio.

The first day's doings closed with a banquet, at the Elks Home at 6:30 p. m., with W. W. Freeman of Cincinnati as toastmaster. More than 300 delegates attended.

Wednesday's program comprised four addresses, the first being, "Safety First in the Natural Gas Business," by J. M. Sisson of the East Ohio Gas Co. of Cleveland, followed by H. C. Cooper of the Hope Natural Gas Co. of Pittsburgh on "Natural Gas in Our Day."

"Recent Developments in the Utilization of Gas" was an address by R. M. Connor of the A. G. A. Testing Laboratory at Cleveland, who dwelt on the exhaustive experiments that have been made with the view of perfecting still further, mixed gas for home and industrial use. He pointed out that the use of mixed gas not only augments the supply of natural gas, but also promotes the use of gases cheaply available as by-products of other industries, thereby spreading that much additional prosperity elsewhere.

Newly chosen officers of the Ohio Gas & Oil Men's Association are: President, L. K. Langdon of Union Gas & Electric Co., Cincinnati; Vice-Presidents, Raymond Cross, Ohio Fuel Gas Co., Columbus; and Warren E. Burns, Marietta, Ohio; Secretary-Treasurer, William H. Thompson, Columbus; Directors, two-year terms, John J. McMahon, Cleveland; Ira L. Neety, Wooster, Ohio; P. W. Lupher, Columbus, and James Burtner, Central, Ohio. Directors, three-year terms: Emmet R. Curtin, Lima; T. C. Jones, Delaware; John Price, Wooster, and L. A. Seyfert, Columbus.

Wednesday all members were urged to accept the invitation of the International Derrick and Equipment Co. for lunch and inspection of its plants. Automobiles were provided to take members to the plants and many of the delegates responded.

Late Fields

(Continued from Page 38)

packer to improve production. The oil is about 29 gravity and that from the Ohio's well, while no gravity test has been reported, is thought to be about the same as that of the Champagnolle extension wells.

GULF COAST

HOUSTON, Tex., Mar. 12.—After flowing only approximately 200 bbls. daily for several months, Bennett Production Co.'s No. 1 Smith, deep sand discovery well, on the southeast flank of Barbers Hill, unexpectedly increased its flow Monday to an estimated 3,000 bbls. of fluid, 2,400 bbls. net oil daily. The well originally was completed last October flowing 4,000 bbls. daily of pipe line oil from sand at 5,231-72 feet, but after a month of unusually consistent production it sanded up and was worked over.

Humble Oil & Refining Co. boosted its potential daily production at DeWalt, Fort Bend County, Monday by completing its No. 2 Camp flowing an estimated 1,500 bbls. daily from a sand at a total depth of 3,610 feet. The well had a pressure of 730 pounds.

Yount Lee Oil Co.'s No. 81 Gladys City, Spindletop, came in flowing an estimated 1,000 bbls. daily at 3,246 feet.

OKLAHOMA

The Sunday shut-down movement again resulted in a substantial decrease in the output of the Greater Seminole and St. Louis Pools at the start of this week. The production of the pools on Sunday morning and Monday morning follows:

Pool—	Sunday March 10	Monday March 11
Little River	75,721	59,615
Maud	33,025	26,533
Mission	33,961	29,596
Bowlegs	34,619	24,867
Earlsboro	53,569	33,704
Seminole	33,160	20,317
Searight	8,774	8,337
Total	272,820	202,969
St. Louis	97,549	71,531
Grand total	370,369	274,500

This reduction of 75,000 bbls. came back with little effort on Tuesday morning when Monday's production was accounted for. The production by pools on Tuesday morning was:

Little River	77,495
Maud	33,575
Mission	33,101
Bowlegs	34,862
Earlsboro	53,168
Seminole	32,830
Searight	9,373
Total	375,958
St. Louis	101,554
Grand total	375,958

The Oklahoma City well produced 2,092 bbls. in the 20 hours ending Tuesday morning at 7 o'clock. There was some time lost in production, and the well apparently did not slip from the previous day's output which was 2,448 bbls., but the loss of four hours accounted for the difference in output. The well is flowing naturally, and making about 1 per cent water after the oil is treated.

A very interesting well east of the south part of the Earlsboro Pool is the Magnolia Petroleum Co.'s No. 1 Anderson, NE cor. NW SE Section 18-9-6. This well had the Wilcox sand 4,358-82 feet and the hole filled up 3,500 feet with oil. It is now shut down for orders. The well is fairly well cut off from both the Earlsboro and the Seminole City Pools by dry holes, and probably constitutes another small high which will result in a finger of production being established. Several of these fingers have been discovered running off from the Earlsboro Pool.

In the north end of the St. Louis Pool, T. B. Slick and the Maud Oil & Gas Co.'s No. 3 Davis, NW cor. SW NE Section 18-7-5, is a light well in the Simpson sand and swabbed 30 bbls. daily from that formation found 4,150-75 feet. It is drilling deeper at the latter depth.

On the west side of the Mission Pool, the Independent Oil & Gas Co. has caused a slight extension by the finding of production in No. 5 Lawson, NW cor. SE SE Section 1-8-5. This had the Simpson 4,244-53 feet and has 2,000 feet of oil in the hole. It will probably make a good air-lift well.

CALIFORNIA

LOS ANGELES, Calif., Mar. 12.—The Continental Oil Co.'s No. 1 Franklin, a wildcat located at Carpenteria, about 10 miles east of the Summerland Field of Santa Barbara County, where some 75 wells are producing out in the open ocean, was given a preliminary test a few days ago from 4,012 feet but developed so much pressure that it had to be again killed with Baroid and heavy mud. The well flowed at the rate of 10,000,000 feet of gas daily and might have shown oil also if it had been permitted to flow indefinitely and clean itself out. Two men were killed and several injured when an elbow in the flow line broke and permitted the lead line to go swishing through the air. This project is the most promising wildcat drilling in the state at the present time and looks like almost a certainty of resulting in commercial production.

The Elwood Consolidated Oil Co. is expected to make a production test on its No. 1 Goleta, located approximately 4 miles northeast of the Elwood Field of Santa Barbara County, and the outcome will be watched with interest as this wildcat has cored an oil sand and has been showing a very heavy gas pressure necessitating the rejuvenation of rotary drilling mud every morning.

EAST CENTRAL TEXAS

Daily average production in the East Central Texas district for the week ending March 9 was:

Boggy Creek	3,658
Cedar Creek	266
Currie	451
Mexia	5,940
Minerva	720
Nigger Creek	380
Powell	8,981
Richland	375
Thrall	33
Wortham	1,365
Total	22,108
Total previous week	22,334
Decrease	226

GALENA SIGNAL CO. TO MAKE LUBRICANTS

After specializing for more than 30 years in the field of railway oils Galena Signal Oil Co. is preparing to begin the manufacture of automotive lubricants, according to announcement by M. J. Bertin, president. A new company, Galena Oil Corp., successor to the Pennsylvania firm, is ready to begin business with a strong cash position, he stated. The Galena Signal recently disposed of a portion of its assets to The Texas Company and re-adjusted its capital. The properties disposed of included those in Texas and foreign subsidiaries.

EXPECT ORDERS FOR NATURAL GAS LINES

By B. E. V. Luty

PITTSBURGH, Mar. 11.—Some small line pipe business has been booked by the pipe mills, but nothing large. The Monroe to St. Louis project is being rounded out and chances now seem to be that orders for the pipe will be placed within a fortnight. A week ago it was noted that the rumors then current that the business had been placed were erroneous. The line from Monroe to Birmingham, Chattanooga and Atlanta is being worked on, franchises being under consideration, and there are chances that this line will be let within a couple months.

Demand for standard or merchant pipe is undergoing a slow seasonal increase, and is fully equal to that of a year ago or two years ago. This is almost entirely in butt weld pipe.

Pipe mills have the poorest operation in a long time, not over 50 to 55 per cent. Seamless tube mills are estimated at 70 to 75 per cent. They have a good demand for mechanical tubing and a fair demand for boiler tubes.

Prices of pipe and tubes are reported as being well held all along the line.

The rate of total steel production has increased somewhat and is probably considerably over 90 per cent.

Recently announced price advances in bars, strips and sheets are not being taken very seriously, as consumers are covered well into April. In the case of sheets the advance is by no means general. It has been announced by the leading interest and by most of the large independents, but many independents have done nothing. One thing seems to have been accomplished by the talk of a regular advance, that being the elimination of price cutting on black below the regular market of 2.85c and on galvanized below 3.60c. The advanced prices named by some mills are 2.95c on black and 3.70c on galvanized. In bars, shapes and plates the market remains quotable at 1.90c to 1.95c, Pittsburgh. While 1.95c is probably obtainable on small lots of bars for early delivery, in shapes and plates the figure is practically nominal.

The advance of a dollar a ton in semi-finished steel announced by various mills more than a week ago will in all probability make the market. Advanced prices are $34 on billets and slabs, $35 on sheet bars and $39 on forging billets, f. o. b. maker's mill, Pittsburgh or Youngstown.

INDEPENDENT'S MEETING

At the annual meeting of the Independent Oil & Gas Co. in Tulsa Monday Waite Phillips was elected chairman of the board of directors; E. H. Moore, president; R. B. Pringle, vice president and general manager; Gillette Hill, vice president in charge of production, and Villard Martin, vice president and general counsel. R. Otis McClintock and R. P. Brewer retired from the directorate and R. B. F. Hummer, of the company's legal staff, was elected to the board.

OIL MAN APPOINTED

Col. P. J. Hurley, attorney and oil operator of Tulsa, has been named Assistant Secretary of War under Secretary James W. Good, according to announcement from Washington.

GRATIFYING RESULTS ATTENDING PRORATION

The second period during which crude oil runs are being prorated in the flush fields of Oklahoma is marked by exceptional results. Production of the pools from March 1 to March 12 shows that the area had a total of about 179,000 bbls. above the figure permitted for this part of the period.

The one day on which all wells in the region were thrown wide open to obtain the potential yields added 128,000 bbls. to production, and under the terms of the Seminole agreement this must not be allowed to bring the total for the 15-day period in excess of the permitted production. Thus, aside from the oil produced through the wells being thrown wide open for gauging, there is only 51,000 bbls. in excess of the permitted production for the first 11 days of the current period.

Letters of instructions from the umpire, Ray Collins, to the operators, giving detailed procedure for the 15-day period which starts March 16 are being mailed. These letters show the per cent of potential production which may be produced, and also state the time which drilling wells must shut down on top of the sand.

The most interesting spot in the matter of new operations in the Greater Seminole belt is around the newly found well of the Darby Petroleum Co. in Section 16-7-4, Pottawatomie County. This well is 5 miles west of the St. Louis Pool. It is a Hunton lime well making 600 bbls. daily, but the interest in this operation is heightened on account of the prevailing geological opinion that the region has exceptional possibilities of offering a good Wilcox sand high. For this reason several deals have been consummated by the larger companies whereby they have acquired additional acreage, and a meeting was held in Tulsa last week to make plans for the orderly development of the region.

The three offset wells are being started, and in addition to this the Prairie-Independent and Shaffer companies have joined in a well to be drilled half a mile west of the discovery well. There seems likelihood that the offsets to the Prairie-Independent-Shaffer well will be started, and when it was announced that the Westland Oil Co. would start one well to the north of the discovery well, it was assumed that the three offsets to this well would also be started.

This means that a total of 11 wells may be started in this vicinity, although there is a possibility that only eight will start.

CHICAGO POST OFFICE BIDS

CHICAGO, Mar. 9. — Bids to supply the Chicago Post Office with gasoline for the quarter beginning April 1 were opened March 4. The number of bids received was less than in most previous biddings. The bids were for the tank car deliveries based on the market price.

Anchor Gasoline & Oil Co., .0138 cent above tank car market; maximum price, 10 cents; no handling charge, net cash. Seneca Petroleum Co., a flat price of 8 cents over the term, or one-eighth cent below the tank car market; maximum, .085 cents; handling charge, one-half cent; cash discount, 1 per cent. Jewett & Sowers Oil Co., one-eighth cent above the tank car market; maximum, .0896 cents; no handling charge, net. Shell Petroleum Co., 8½ cents Group 3, over the quarter. Shaffer Oil & Refining Co., at the tank car market; maximum, .0919 cents; handling charge, one-half cent; 1 per cent for cash. The bids were forwarded to Washington for approval. Jewett & Sowers Oil Co. holds the contract at present.

GULF COAST MARKETS BUT LITTLE CHANGED

HOUSTON, Tex., Mar. 14.—No important changes were indicated in Gulf Coast refinery markets the past week. Lubricating oils evidently were steady in tone with the approach of spring and summer with their greater seasonal consumption. Fuel oils continued firm and gas oils strong on the low sulphur content and cracking stock products. Sales of lubricating oils were not great but a steady tank car business on nearly all grades is causing a little better feeling and cutting of prices is not so prevalent. Sales of fuel oil on the open market were few but with several former large sellers still out of the market sources of supply continue limited.

ETHYL GASOLINE DISTRIBUTION

CHICAGO, Mar. 9.—The Johnson Oil & Refining Co. has begun to distribute Ethyl gasoline through its own stations and to its jobbing customers. The date originally set for the distribution of Ethyl gasoline in this territory was March 16, but permission was received to begin at once. The Johnson company will distribute in four states, Michigan, Indiana, Illinois and Wisconsin. The distribution is not confined to one concern but is open to others who can qualify under the rules of the Ethyl Gasoline Corp.

A.I.M.E. MEETING

Members of the Mid-Continent section of the American Petroleum Institute of Mining and Metallurgical Engineers discussed papers presented at the meeting of the national organization in New York last month at the regular meeting of the section held in Tulsa last Monday night. The next meeting of the section will be held in Tulsa on the evening of April 8.

NEW GASOLINE PLANT

The Coal Liquefaction & Refining Co. of Duisburg-Meiderich has commenced production of synthetic gasoline. This plant has been under construction for a year or more; production is estimated at 30,000 tons of gasoline a year, from coal pitch at first and later from low-grade coal. The Leunawerk, of the German Dye Trust, produces from 50,000 to 100,000 tons of synthetic gasoline annually by hydrogenating low-grade lignite. This output may be increased eventually to 250,000 tons. It is therefore possible that future German production may come to 300,000 tons of synthetic gasoline a year.

A. O. MILLER CHOSEN PRESIDENT

Arthur O. Miller of Youngstown, Ohio, has been elected president of the Petroleum Iron Works, succeeding J. L. Considine of Sharon, Pa., resigned.

CALIFORNIA ISSUES SHOW BETTER TONE

(Continued from Page 145)

bilities include capital stock issued $242,662; bank loan, $15,000; sundry liabilities, $9,284.74; depletion reserve $21,266.10, and depreciation reserve $22,925.64. Receipts for the year from oil and gas sales, less royalties, amounted to $107,277.92, while premiums on shares sold reached $67,949.32, a total of $175,227.24. Expenditure on development account during the year reached $86,502.45, sundry other expenses bringing the total to $97,175.53.

White Eagle

White Eagle Oil & Refining Co. declared regular quarterly dividend of 50 cents a share, payable April 20, 1929, to stockholders of record March 29, 1929.

Standard of Indiana

Report of Standard Oil Co. of Indiana for year ended December 31, 1928, shows net profit, including $21,821,870 extra dividend received from Midwest Refining Co., was $77,337,166 after depreciation and tax reserve, equivalent to $8.33 a share (par $25) earned on outstanding 9,284,668 shares of stock. This compares with $30,132,456 or $3.26 a share on 9,231,540 shares in 1927.

Income account for year 1928 compares as follows:

	1928	1927
*Net earnings	‡$83,437,166	$33,197,456
Tax resreves	6,100,000	3,065,000
Net profit	$77,337,166	$30,132,456
Dividends	32,416,528	32,130,170
Surplus	$44,920,638	†$1,997,714

*After depreciation. ‡Includes $21,821,870 extra dividend received from Midwest Refining Co. †Deficit.

Humble Oil & Refining

Pamphlet report of Humble Oil & Refining Co. and subsidiaries for year ended December 31, 1928, shows net profit of $19,277,145 after interest, depreciation, depletion, intangible development costs, Federal taxes, etc., equivalent to $6.50 a share (par $25) earned on 2,964,132 shares of stock outstanding at end of year. This compares with $7,111,738 or $2.41 a share on 2,947,428 shares outstanding at end of 1927.

Consolidated income account for year 1928, compares as follows:

	1928	1927
Gross. op. inc.	$169,653,138	$158,662,979
Costs and exp.	118,556,097	122,871,005
Tax and intang. dev. costs	7,989,173	6,449,754
Depl. and amort.	5,184,168	4,057,677
Deprec., retire, etc.	17,645,428	16,716,204
Net op. inc.	$20,278,272	$8,568,339
Other inc.	1,733,107	1,203,678
Total inc.	$22,011,379	$9,772,017
Interest	2,734,234	2,660,279
Net profit	$19,277,145	$7,111,738
Dividends	5,913,194	5,874,605
Surplus	$13,363,951	$1,237,133

Twenty Representative Stocks

The Oil and Gas Journal weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

January 26	57.44
February 2	57.55
February 9	55.28
February 16	55.35
February 23	54.92
March 2	56.43
March 9	55.96

GREATER SEMINOLE PRODUCTION REPORT

Ray M. Collins, umpire of the greater Seminole area in Oklahoma, issued the following production report for the different pools for the first period of proration, extending from February 14 to March 1:

SUMMARY—POOL TOTALS

	Daily potential prod.	Daily allowed prod.	15 days actual prod.	15 days allowed prod.
Earlsboro	69,627	57,107	856,960	856,605
Bowlegs	43,463	35,638	514,975	534,570
Seminole City	40,976	33,604	503,055	504,060
St. Louis	133,899	107,120	1,560,806	1,606,800
Searight	10,614	8,705	137,072	130,575
Maud	56,015	42,572	555,573	638,580
Little River	104,965	86,074	1,244,307	1,291,110
Total	459,559	370,820	5,372,748	5,562,300

Average actual production per day, 358,183 bbls.

OIL BONDS ON THE NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Members New York Stock Exchange, Kennedy Bldg., Tulsa, Okla.

	Company—	Date	Pct.	Int.	For week ended Mar. 8— Sales	High	Low	Close
11,603,000	American Nat. Gas. Co.	Oct. 1942	6½	A&O	No sales.			
3,000,000	Beacon Oil Co.	Nov. 1936	6	M&N	26,000	110	109	109
18,900,000	Cities Service deb.	Jan. 1966	6	M&N	No sales.			
15,000,000	Cities Serv. refunding deb.	Jan. 1966	5	M&S	14,800	89⅝	88⅝	89⅝
24,843,700	Cities Service Gas Co.	May 1942	5½	M&N	7,500	91	90½	91
12,000,000	Cities Service Gas P. L. Co.	Jan. 1943	6	J&J	2,000	96⅜	95½	95½
12,000,000	Continental Oil Co.	Nov. 1937	5¼	M&N	2,400	96¼	95	96¼
3,000,000	Dixie Gulf Gas Co. A	Sept. 1937	6½	M&S	4,700	86⅝	86½	86⅛
18,000,000	Empire Oil & Ref. Co.	Apr. 1942	5½	A&O	5,100	90¼	89⅜	90
3,877,100	Galena Signal Oil Co.	Apr. 1930	7	A&O	4,200	101	100⅜	100⅝
30,904,000	Gulf Oil of Pa.	Dec. 1937	5	J&D	5,600	99⅝	98⅜	98⅝
12,000,000	Gulf Oil of Pa. debs.	Feb. 1947	5	F&A	7,800	101	100	100⅛
4,000,000	Houston Gulf Gas	Apr. 1943	6	A&O	1,800	90	90	90
4,000,000	Houston Gulf Gas	Apr. 1943	6½	A&O	2,800	91⅜	91	91
6,339,000	Independent Oil & Gas	Mar. 1939	6	M&S	19,200	106⅞	105	105
15,000,000	Lone Star Gas Co.	May 1942	6	M&N	1,400	97½	97	97
11,650,000	Richfield Oil Co.	Sept. 1941	6	M&S	No sales.			
1,427,000	Richfield Oil Co.	Jan. 1931	5½	J&D	2,400	99½	99	99
9,733,000	Sun Oil Co.	1939	5½	M&S	2,400	100½	100⅛	100⅛
4,000,000	Transcontinental Oil Co.	Apr. 1930	7	A&O	No sales.			
2,500,000	Warner-Quinlan Oil Co.	1942	6	A&O	No sales.			

GREATER PERCENTAGE OF WELLS OF GUSHER TYPE COMPLETED RECENTLY

Among the numerous reasons why there is an overproduction of oil in the United States is that the percentage of big wells drilled in 1928 and in 1927 was greater than it has ever been in history. In 1928 the percentage of wells that produced over 2,000 bbls. initially was 5.6 times higher than in 1920, and the percentage in 1927-28 was four times as high as in 1921-22. In the matter of wells starting off at 1,000 to 2,000 bbls. the percentage in 1928 was nearly 2.4 times as high as in 1920. We purposely go back to 1920 because that was the year Mid-Continent crude sold for $3.50 per barrel and Pennsylvania grade crude was at $6.10 per barrel. It was the high tide in crude price in the past half a century, an average of $3.17 per barrel for the whole United States. There were no Yates Pools, Hendricks, Santa Fe Springs or Greater Seminoles, developed in 1920, and while 24,325 oil wells were completed as against 12,526 last year the initial production of the wells averaged only 144 bbls. as against 667.9 bbls. in 1928 and 340.4 bbls. in 1927.

The Oil and Gas Journal publishes each month a report showing the completions, in every field in the United States east of California including the initial production of the wells together with a record of the dry holes and gas wells. This has been a feature of The Oil and Gas Journal since its inception and of the Oil City Derrick for over 50 years. From these reports the statistical department of the Mid-Continent Oil & Gas Association has made a report dividing the oil wells into groups based on initial production. The accompanying table covers a period of nine years and covers The Oil and Gas Journal's monthly reports in a very interesting and illuminating way. It gives the reader a different picture of the business of drilling for oil than he could obtain from any other set of statistics. Some of the results of the exhaustive research into The Oil and Gas Journal's report of completions will surprise many readers.

More Small Wells

The largest percentage of oil wells have an initial production of 25 bbls. or less. This is so in every division covered by the report with the exception of Texas (outside the Gulf Coast and Southwest Texas fields). In all the fields the percentage of small wells, 1 bbl. to 25 bbls., is 25.8 in 1928 and 30.7 covering a period of nine year. Texas alone—that is, the Mid-Continent fields in Texas, completed more wells good for upwards of 2,000 bbls. than it did wells of 25 bbls. or less. In the matter of very large initial producers (over 2,000 bbls.), all records were broken last year with a total of 605, of which 415 were in Texas (outside the Gulf Coast and Southwest Texas fields) and 128 in Oklahoma. The 1927 record of very big wells was 551; 1926, 305; 1920, 172. Last year the number of wells starting off at 1,001 to 2,000 bbls. a day was 400 while in 1920 it was 252.

Looking over the results of drilling in the past nine years it would seem that the oil industry has only begun to skim the top of the tremendous crude petroleum supply which nature has buried beneath the surface on this continent. While in the earlier years big fields, yielding a peak of 100,000 bbls. or more were brought in at long intervals, in recent years 100,000-bbl. fields have been brought in in batches. It took from 1859 to 1881 to produce the first 100,000-bbl. field, that having been the Bradford Field in Pennsylvania and 20 years more to produce the second, which was Spindletop in Texas. Humble, Texas, came in 1904 and Glenn Pool, Oklahoma, in 1907. Midway-Sunset, California, reached the 100,000-bbl. mark three years later and Cushing, Oklahoma, three years after that, or in 1913. Burkburnett, Texas, reached the 100-bbl. mark in 1919, and Breckinridge, Texas, and Mexia, Texas, in 1921 and then the 100,000-bbl. fields came in droves. Santa Fe Springs, Long Beach and Huntington Beach in California, and Burbank in Oklahoma passed the mark in 1922 and Powell, Texas, Smackover, Arkansas, and Tonkawa, Oklahoma, in 1923. The history of Wortham, Texas, the second peak of Smackover, Seminole, Bowlegs, Earlsboro, Little River and St. Louis Pools, all located within a few miles of the other in two counties in Oklahoma since 1926; the Borger Field in the Texas Panhandle; the Yates Pool which could do 1,000,000 bbls. a day but which has been held down to below the 100,000-bbl. mark; Hendricks Pool in Winkler County, Texas, also held in restraint but a 100,000-bbl. field are fresh in the minds of our readers.

The statistical record tells the story in another way. In 1928 the percentage of completed oil wells starting off at 750 bbls. or more per day was 5.8 of the total number of wells completed, including dry and gas wells. In 1927 the percentage was 5.9; in 1926, 3.1; in 1925, 4.5; in 1924, 3.9; in 1923, 5.6; 1922, 5.2; 1921, 3.6, and 1920, 2.2.

Over a period of nine years the percentage of wells that were under 25 bbls. initial production or were either dry or gas wells was 67.4. The remaining 32.6 per cent were wells that started at from 26 bbls. upward. In 1928 the percentage of small wells, dry holes and gas wells was 71.0 and 29 per cent were wells of from 26 bbls. upward.

Improved Methods

These latter-day big fields not only yield larger initial producers than the old big fields, but superior engineering methods which are being improved upon steadily, are the means of maintaining production at a high level over a much longer period than in former years. Seminole, Bowlegs and Earlsboro would not have yielded a natural production compared to what the gas lift brought up, while on the other hand there is little doubt that the famous Cushing Field would not have experienced its sharp and pronounced decline from a peak of about 305,000 bbls. had the field been developed along modern lines. In the early days of Seminole, when the gas lift was in the experimental state, it will be recalled that even the smartest oil men looked for a complete letdown of production quickly following the peak of the field. Instead the decline was gradual and the productivity of the pools on a large scale has been maintained much longer than the most hopeful expected.

Returning to the subject of the classification of well completions, a study of the table shows that the largest percentage of gas wells in nine years was completed in 1928. While the percentage of gas wells covering the nine-year period was 9.6, the 1928 percentage was 12.5. The smallest was in 1920, when it was only 6.8 per cent. A total of 20,892 gas wells were completed east of California from 1920 to 1928, both inclusive, and 1928 led all the years in number of wells as well as in percentage of gas wells.

HUMBLE EXTENDING LINE

HOUSTON, Texas, Mar. 11.—Humble Pipe Line Co. is laying a 6-inch pipe line from the Barbers Hill Field of Chambers County to its main Hull-Goose Creek line which passes within a mile and a half of the field. The line will run the production recently opened by Yount Lee Oil Co. on the southwest flank of the dome. Liberty Pipe Line Co., which connects with production on other sides of the dome, previously has been the only outlet.

GREATEST YEAR FOR COMMERCIAL AVIATION

NEW YORK, Mar. 11.—Air transport companies in the United States covered 10,472,024 miles on scheduled routes in 1928 with a fleet of 294 planes and carried 52,934 passengers, according to aircraft year book figures made public by the aeronautical chamber of commerce. The 1928 figures embrace an increase of 420 per cent in passengers and 100 per cent in mileage over 1927.

New passenger routes totaling 6,451 miles were added during the year, and 16 mail lines were established or extended, an aggregate of 5,928 miles. Nine express lines covering 2,151 miles were launched.

The great increase was attributed by the chamber to the trebling during the year of air mail poundage, which jumped from 1,222,843 pounds in 1927 to 3,632,059 in 1928.

The total number of air miles under operation at the close of 1928, aviation's silver jubilee, was 15,128, two-thirds of which were lighted or otherwise equipped for night flying. Twenty-two companies were operating 33 air mail lines, and four new air mail routes were planned for 1929.

JOHN WALKER DIES

CHATHAM, Ontario, Mar. 9.—John Walker died recently at Petrolia, Ont., in his eightieth year. A native of Scotland, he came to Petrolia in 1870, learned the drilling trade, and later engaged extensively in the oil business. He helped organize and managed the Producers Oil Refining Co. and the Producers Tanking Co., and later handled the merchandising of McMillan, Kittredge & Co. in the Niagara district, subsequently engaging in the manufacture and marketing of lubricants. He patented an improvement on deep well pumps and also operated the first iron jerker wheel ever run in the Canadian fields, which revolutionized Canadian oil production.

DEATH OF CHARLES E. MASON

Charles E. Mason, assistant secretary and treasurer of the Pure Oil Co., died in Chicago of heart disease on Monday, March 11. He was 58 years of age. Mr. Mason had been with the Pure Oil Co. 10 years. He formerly lived in Hamilton, Ohio, and the funeral will be held in that city Thursday. He was married, and Mrs. Mason survives.

CLASSIFICATION OF WELL COMPLETIONS

By States and Years, 1920 to 1928, Inclusive, East of California

(Initial production per well in barrels of 42 gallons, as reported to The Oil and Gas Journal)

1928—	Dry	Gas	25 bbls. or less	26 to 50 bbls.	51 to 75 bbls.	76 to 100 bbls.	101 to 200 bbls.	201 to 300 bbls.	301 to 500 bbls.	501 to 750 bbls.	751 to 1,000 bbls.	1,001 to 2,000 bbls.	Over 2,000 bbls.	Total compltd.
Oklahoma	1,229	491	508	241	121	89	231	123	155	145	94	122	128	3,677
Kansas	459	118	163	100	38	50	117	43	27	19	11	8	4	1,157
Texas (except S. W.)	2,315	347	831	454	247	193	383	160	140	90	48	142	415	5,765
Gulf Coast and S. W. Texas	995	159	207	122	54	77	146	64	81	48	74	106	41	2,174
Louisiana-Arkansas	417	257	56	40	18	19	28	13	13	7	4	11	13	896
Rocky Mountain Fields	311	84	109	87	44	39	54	26	18	7	5	7	3	794
Eastern Fields	560	1,055	2,928	87	32	17	45	18	4	2	0	0	0	4,748
Lima-Indiana	140	60	135	51	10	7	6	0	4	0	0	1	0	414
Illinois-Michigan	87	38	63	45	12	17	14	7	7	3	1	3	1	298
Ky., Tenn., Miss., Ala., Ga. and Fla.	454	55	512	190	62	72	58	11	4	0	1	0	0	1,419
Total	6,967	2,664	5,512	1,417	638	580	1,082	465	453	321	238	400	605	21,342
Per cent	32.7	12.5	25.8	6.6	3.0	2.7	5.1	2.2	2.1	1.5	1.1	1.9	2.8	100.0
1927—Total	7,008	2,472	6,267	1,643	741	688	1,228	546	542	354	292	494	551	22,826
Per cent	30.7	10.8	27.5	7.2	3.2	3.0	5.4	2.4	2.4	1.5	1.3	2.2	2.4	100.0
1926—Total	7,778	2,344	8,131	2,571	1,331	1,153	1,907	745	663	299	241	323	305	27,791
Per cent	28.0	8.4	29.3	9.3	4.8	4.1	6.9	2.7	2.4	1.0	0.9	1.1	1.1	100.0
1925—Total	6,490	2,359	6,678	2,141	985	866	1,569	727	687	333	295	409	385	23,924
Per cent	27.1	9.9	27.9	9.0	4.1	3.6	6.6	3.0	2.9	1.4	1.2	1.7	1.6	100.0
1924—Total	5,138	2,303	5,850	1,697	857	879	1,461	663	671	261	251	338	230	20,599
Per cent	24.9	11.2	28.4	8.2	4.2	4.3	7.1	3.2	3.3	1.3	1.2	1.6	1.1	100.0
1923—Total	5,974	2,393	7,104	1,766	945	881	1,464	710	624	307	309	503	520	23,500
Per cent	25.5	10.2	30.2	7.5	4.0	3.8	6.2	3.0	2.7	1.3	1.3	2.1	2.2	100.0
1922—Total	5,883	2,021	8,135	1,699	816	851	1,550	683	705	360	374	495	378	23,950
Per cent	24.6	8.4	34.0	7.1	3.4	3.6	6.5	2.8	2.9	1.5	1.5	2.1	1.6	100.0
1921—Total	5,929	2,087	6,955	1,590	715	769	1,092	583	628	274	260	314	196	21,392
Per cent	27.7	9.8	32.5	7.4	3.3	3.6	5.1	2.7	3.0	1.3	1.2	1.5	0.9	100.0
1920—Total	7,972	2,249	12,480	2,997	1,274	1,348	1,918	1,048	798	368	284	252	172	33,160
Per cent	24.0	6.8	37.6	9.0	3.8	4.1	5.8	3.2	2.4	1.1	0.9	0.8	0.5	100.0
Grand total, 9 years, 1920-1928, inclusive	59,139	20,892	67,112	17,521	8,302	8,015	13,271	6,170	5,771	2,877	2,544	3,528	3,342	218,484
Per cent	27.1	9.6	30.7	8.0	3.8	3.7	6.1	2.8	2.6	1.3	1.2	1.6	1.5	100.0

XUM

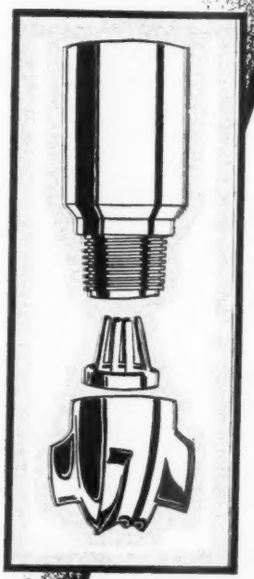
The Cost of Inadequate Coring Is Prohibitive

SOME field authorities have flatly declared that the failure of some of the smaller companies to break into large production is due to their failure to core adequately and efficiently; being inclined to accept correlated depths as facts rather than tentative guides and not wishing to spend money for coring to get actual data.

When the ultimate results of this intended economy are tabulated it is clearly evident that the cost of not coring, or inadequate coring, is prohibitive.

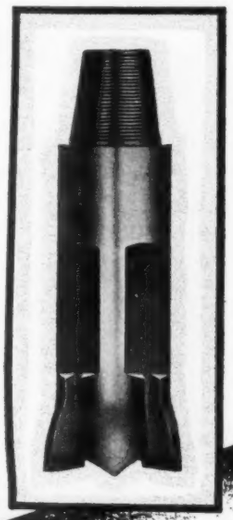
The only known means of determining what actually exists in the hidden structures of any well is efficient, dependable coring—coring that brings up perfect samples of the formations in their natural state.

To core is to know. Failure to core, or taking inadequate, imperfect cores, is gambling against heavy odds.



Elliott Core Drill for Rotary Tools.

Elliott Cable Tool Core Drill



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Of Interest to Sales Departments

PUBLIC UTILITY POWER PLANTS USE MORE OIL

During 1928 the trend toward the use of less fuel oil by the public utility power plants in the United States was broken and the consumption of 7,126,000 bbls. represents an increase of 5.1 per cent above that for 1927. The peak of consumption for these plants came in 1924 when 16,630,000 bbls. were consumed and since that year there has been a consistent decline with the exception of last year. Natural gas and water power have each showed marked increases in use, the gas consumption for this use last year amounting to 22.7 per cent more than during the previous year.

Water power increased 16.3 per cent so that now it supplies 39.6 of the power generated and all fuels combined provide the balance, or 60.4 per cent. Of this amount of electric energy generated by fuels, coal produced 88 per cent, gas 7 per cent, oil 4 per cent and wood less than 1 per cent. The perfection of equipment to handle the pulverized cheap grades of coal are largely responsible for the high consumption of coal which has been in direct competition with the increasing gas supplies and relatively low fuel oil prices.

The following is a table showing the consumption of the three major fuels for the past 10 years:

ANNUAL CONSUMPTION OF FUEL IN THE PRODUCTION OF ELECTRICITY BY PUBLIC UTILITY POWER PLANTS IN THE UNITED STATES*

Year—	Short tons	Bbls.	M.cu.ft.
1919	35,100	11,050	21,406
1920	37,124	13,123	24,702
1921	31,585	12,045	23,722
1922	34,179	13,197	27,172
1923	38,966	14,684	31,433
1924	37,556	16,630	48,443
1925	40,222	10,246	46,521
1926	41,311	9,399	53,207
1927	41,888	6,782	62,919
1928	41,336	7,126	77,174

*Figures given in thousands of tons, barrels, and cubic feet.

GRAYBURG TO ENLARGE MARKETING FACILITIES

SAN ANTONIO, Tex., Mar. 9.—Grayburg Oil Co. since the recent merger with the Indiana Oil & Gas Co. has announced a change of policy and will not hereafter market any of its products through jobbers but will market its entire product through its own filling stations. Beginning March 1 the company began marketing a gasoline on new specifications recently adopted and while the old name of "Kilnoc" will be retained it will be Kilnoc blue instead of red. The gasoline will be colored blue for purposes of identification and will be marketed through blue pumps.

Silas M. Newton, the new president of the company, announced that work had already started on preparing the ground for two $75,000 super filling stations and all of the company's stations in San Antonio are being repainted an aluminum and gray blue, replacing the old gray and red.

In the merger, which was a three-cornered affair whereby the properties operated by the Oil Operators Trust in West Texas and the Panhandle were turned over to the Grayburg the latter company gets considerable additional production from the Pecos-Yates Field which will be run through the Illinois Pipe Line to Lytle and from there taken by Grayburg to its refinery in San Antonio.

John W. Choate, formerly of Oklahoma City, has moved to San Antonio, and will serve the company as vice president.

PERCENTAGE INCREASE IN GASOLINE CONSUMPTION

BY STATES AND DISTRICTS

	Number of gallons during year— 1927	1928	1928 Compared with 1927
Northern states:			
Connecticut	159,953,000	(*)	(*)
Delaware	24,273,000	27,706,000	14.1% Inc.
District of Columbia	57,804,000	63,375,000	9.6 Inc.
Massachusetts	(*)	(*)	(*)
Maine	74,738,000	82,238,000	10.0 Inc.
Maryland	131,500,000	(*)	(*)
New Hampshire	45,722,000	47,699,000	4.3 Inc.
New Jersey	(*)	‡388,802,000	(*)
New York	(*)	(*)	(*)
Ohio	770,658,000	860,710,000	11.7 Inc.
Pennsylvania	691,557,000	733,269,000	6.0 Inc.
Rhode Island	61,436,000	66,139,000	7.7 Inc.
Vermont	33,167,000	37,312,000	12.5 Inc.
Total§	§1,759,355,000	§1,918,448,000	§9.0% Inc.
Southeastern states:			
Alabama	147,225,000	167,279,000	13.6% Inc.
Florida	247,951,000	226,904,000	8.5 Dec.
Georgia	192,262,000	205,584,000	6.9 Inc.
Kentucky	118,273,000	133,846,000	13.2 Inc.
Mississippi	117,756,000	(*)	(*)
North Carolina	‡199,080,000	‡223,331,000	‡12.2 Inc.
South Carolina	101,772,000	110,514,000	8.6 Inc.
Tennessee	148,952,000	170,658,000	14.6 Inc.
Virginia	166,782,000	183,447,000	10.0 Inc.
West Virginia	‡95,411,000	‡100,883,000	‡5.7 Inc.
Total§	§1,417,708,000	§1,522,446,000	§7.4% Inc.
Indiana Territory and Nebraska:			
Illinois	(*)	(*)	(*)
Indiana	349,995,000	387,042,000	10.6% Inc.
Iowa	†283,640,000	306,651,000	8.1 Inc.
Michigan	593,372,000	673,335,000	13.5 Inc.
Minnesota	289,686,000	328,459,000	13.4 Inc.
Missouri	322,219,000	352,765,000	9.5 Inc.
Nebraska	169,677,000	199,446,000	17.5 Inc.
North Dakota	88,641,000	117,169,000	32.2 Inc.
South Dakota	88,031,000	110,652,000	25.7 Inc.
Wisconsin	313,586,000	357,146,000	13.9 Inc.
Total	2,498,847,000	2,832,665,000	13.4% Inc.
Mid-Continent states:			
Arkansas	99,394,000	119,184,000	19.9% Inc.
Kansas	270,615,000	325,179,000	20.2 Inc.
Louisiana	151,605,000	168,079,000	10.9 Inc.
Oklahoma	251,462,000	281,939,000	12.1 Inc.
Texas	591,447,000	670,817,000	13.4 Inc.
Total	1,364,523,000	1,565,198,000	14.7% Inc.
Western states:			
Arizona	41,237,000	56,715,000	37.5% Inc.
California	1,017,681,000	1,101,404,000	8.2 Inc.
Colorado	129,184,000	144,912,000	12.2 Inc.
Idaho	42,343,000	50,150,000	18.4 Inc.
Montana	53,248,000	74,049,000	39.1 Inc.
Nevada	12,720,000	14,359,000	12.9 Inc.
New Mexico	30,654,000	36,793,000	20.0 Inc.
Oregon	130,885,000	144,207,000	10.2 Inc.
Utah	41,774,000	47,393,000	13.5 Inc.
Washington	203,421,000	227,043,000	11.6 Inc.
Wyoming	26,218,000	31,794,000	21.3 Inc.
Total	1,729,365,000	1,928,819,000	11.5% Inc.
Grand total all states§	§8,769,798,000	§9,767,576,000	§11.4% Inc.

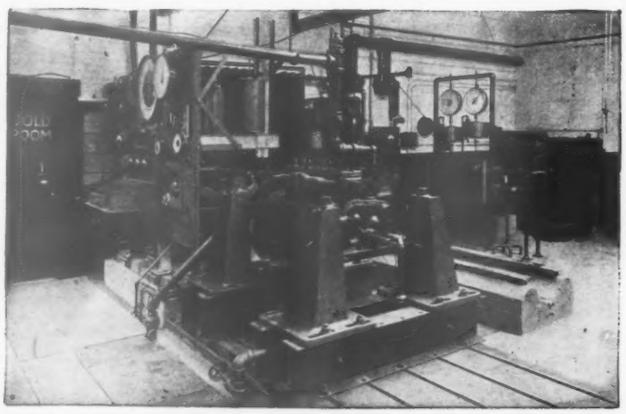
*Unavailable. †Partly estimated. ‡Eleven months. §For states showing 1927 and 1928 data.

Prepared by Western Petroleum Refiners Association from state tax reports.

INDIANA BOOSTS GAS TAX

CHICAGO, Mar. 9.—The lower house of the Indiana legislature has passed the bill increasing the state tax on gasoline from 2 to 3 cents a gallon. The measure now goes to the upper house for its concurrence. The measure is backed by the farm bloc in both houses. Reduction in other taxation is promised.

RESEARCH AT VACUUM REFINERY



Dynamometer test room of the research laboratories of the Paulsboro, N. J., refinery of the Vacuum Oil Co.

APPEAL NOVEL TAX SUIT TO U. S. SUPREME COURT

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Mar. 12.—A Kentucky statute which purports to levy a tax on all gasoline purchased outside of the State, but which is used in the State has been challenged as unconstitutional in the Supreme Court of the United States.

This is the case of James R. Helson against the commonwealth of Pennsylvania. It is pointed out by the plaintiff in error that they are the owners of a ferry boat which operates between Metropolis, Ill., and the point opposite on the Kentucky shore of the Ohio River. The gasoline used on this ferry has at all times been purchased in Illinois. The tax under consideration is levied under a Kentucky statute which purports to exact a tax of 5 cents a gallon on all gasoline purchased outside of the State but which is used within the State. In this instance a judgment for the unpaid tax and attendant penalties was obtained in the Circuit Court and affirmed by the Court of Appeals of Kentucky. It is contended for the plaintiff that the tax imposed was necessarily a tax on interstate commerce and as such was void. In this case they said the commodity taxed never came to rest in the State of Kentucky.

Counsel for the defendant in error contended that the gasoline consumed was not an article of commerce when brought to be and while being used in a ferry boat and that the State does not violate the commerce clause by laying an excise tax upon such gasoline. He contended that the taxable situs for personal property depends upon the use made of it rather than the residence of the owner.

The fourteenth amendment simply requires that the state legislature shall treat all persons alike and where the law operates with uniformity upon all similarly situated it does not violate the commerce clause.

TANK TRUCKS IN NEW YORK

NEW YORK, Mar. 9.—Justice Aaron J. Levy has denied in the State Supreme Court an application by the Smith-Hamburg-Scott Welding Co. of Long Island City for a temporary injunction to restrain Fire Commissioner John J. Dorman from approving gasoline and other inflammable tank trucks constructed in accordance with which the plaintiff termed certain fire department specifications. The court also denied an application for a mandamus to compel Commissioner Dorman to approve tank trucks manufactured by the welding company.

The suit was started last November, the plaintiff charging an alleged municipal monopoly on the part of local agents of a tank car company whose tank trucks are being approved exclusively by the fire department. The complaint set forth that fire department specifications preclude the use of any other trucks in the city. These specifications, the plaintiff maintained, are in violation of the city charter, which declares that no public officer can order the use of any patented device without a fair competition. Justice Levy ruled that it was not shown that the specifications called for a patented device.

NEW TANKER

CHATHAM, Ontario, Mar. 9.—It is announced that the second of a fleet of tankers for the McColl-Frontenac Oil Co. of Montreal and Toronto will be launched at Haverton-on-Tess, England, on March 7. It will be one of the largest tankers on the Great Lakes, and will ply principally between Buffalo and Toronto, delivering crude from the Mid-Continent fields to the company's Toronto refinery.

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Oxidation of Paraffin Hydrocarbons

Many Valuable Substances Available From Crude Oil, Natural Gas, Cracking Stock and Coal. Large Volumes Obtainable

By Gustav Egloff and R. E. Schaad*

The gaseous paraffin hydrocarbons are a veritable treasure house for a potential source of oxidized substance such as alcohols, aldehydes, acids and resins.

The quantity yearly available, is of astronomical magnitude. They are available in natural gas, crude oil, in the cracking of heavy oils, in the carbonization of coal and from carbureted water gas.

The volume of methane, ethane, propane and butane gas produced in the United States during the year 1927 was over 2,472,000,000,000 feet. The major use for these hydrocarbons is for fuel. There are higher uses to which at least a portion of the methane, ethane, propane and butane present in commercial fuel gases should be put. As for example such products, as alcohols for solvents; aldehydes for synthetic resins; acids and oxidized resins for lacquers all of which may be produced by means of oxidation using air, ozone or chemical reagents.

The volume of the various industrial gases containing methane, ethane, propane and butane which are available yearly are tabulated as follows:

AVAILABLE SUPPLIES OF COMMERCIAL FUEL GASES AND THEIR CONTENT OF GASEOUS PARAFFIN HYDROCARBONS*

Gas—	Volume cubic feet	Methane per cent	Ethane per cent	Propane per cent	Butane per cent
Natural gas†	1,750,000,000,000	85	9	3	1
Coke over gas‡	639,644,000,000	28	12	1	..
Gas from refining of crude oil§	240,000,000,000	61	21	12	4
Coal and water gas¶	210,743,000,000	13	3	0.3	..
Cracked gas from pressure distillation of heavy oils‖	200,000,000,000	55	18	5	2
Carbureted water gas¶	112,186,000,000	13	3	0.3	..
Oil gas¶	24,289,000,000	40	15	..	..
Coal gas¶	7,411,000,000	31	0.1	..	..
Propane and butane in natural gasoline calculated to gas volume£	15,995,750,000	..	..	..	..
Propane and butane in unblended refinery gasoline, straightrun and cracked, calculated to gas volume** ††	15,865,500,000	..	..	..	..

*The gas analyses were approximated by G. A. Burrell from results of his observations.
†Hopkins, United States Bureau of Mines.
‡Mineral resources of the United States, 1925—Part 2, page 601; Separate 11:30: "Coke and By-products in 1925."
§Estimate from data furnished by G. A. Hopkins, United States Bureau of Mines.
¶Department of Commerce, Statistical Abstract of the United States, 1926.
‖Estimated by Egloff.
£Estimated by G. A. Burrell.
**In a private communication to the authors, G. G. Brown estimated the average propane content of unblended refinery gasoline, straightrun and cracked, as about 0.5 per cent by weight and the average butane content about 3.0 per cent.
††The production of unblended refinery gasoline, straightrun and cracked, is estimated by the Bureau of Mines at 12,537,000,000 gallons. The Oil and Gas Journal, March 1, 1928, page 120.

The volumes of the gaseous paraffin hydrocarbons contained in these gases are as follows:

TABLE 2—VOLUMES OF GASEOUS PARAFFIN HYDROCARBONS AVAILABLE FROM COMMERCIAL FUEL GASES
(In cubic feet)

Gas—	Methane	Ethane	Propane	Butane
Natural gas	1,487,500,000,000	157,500,000,000	52,500,000,000	17,500,000,000
Coke oven gas	179,100,320,000	76,757,280,000	6,396,440,000	.....
Gas from refining of crude Oil	146,400,000,000	50,400,000,000	28,800,000,000	9,600,000,000
Coal and water gas	27,396,590,000	6,322,290,000	632,229,000	.....
Cracked gas from pressure distillation of heavy oils	110,000,000,000	36,000,000,000	10,000,000,000	4,000,000,000
Carbureted water gas	14,584,180,000	3,365,580,000	356,558,000	.....
Oil gas	9,715,600,000	3,643,350,000	.....	.....
Coal gas	2,297,410,000	74,110,000	.....	.....
Propane and butane in natural gasoline calculated to gas volumes	.....	.....	1,941,750,000	14,051,000,000
Propane and butane in unblended refinery gasoline, straightrun and cracked, calculated to gas volumes	.....	.....	3,301,500,000	12,564,000,000

Summary

	Feet
Methane	1,976,994,100,000
Ethane	334,062,610,000
Propane	103,928,477,000
Butane	57,715,000,000
Total	2,472,700,187,000

By oxidation these hydrocarbon gases may be converted into methyl, ethyl, propyl, and butyl alcohols, formaldehyde, acetaldehyde, propionaldehyde and butyraldehyde, the acids formic acetic, propionic and butyric and resins.

Possible Yields

To give an idea of the enormous potentialities of hydrocarbon oxidation, the theoretical yields of methyl, ethyl, propyl and butyl alcohols obtainable from the available gaseous paraffin hydrocarbons have been calculated as follows:

Alcohols—	Gallons
Methyl	21,519,328,930
Ethyl	5,817,493,000
Propyl	2,588,750,000
Butyl	1,754,600,000

SUBSTANCES IDENTIFIED AS OXIDATION PRODUCTS OF METHANE, ETHANE, PROPANE, BUTANE AND ISO-BUTANE

	Methane	Ethane	Propane	Butane	Iso-butane
Methyl alcohol	Yes	...	...	...	...
Ethyl alcohol	...	Yes	...	...	...
Formaldehyde	Yes	Yes	...	...	...
Acetaldehyde	...	Yes	...	...	...
"Aldehydes"	...	...	Yes	Yes	...
Formic acid	Yes	Yes	...	...	...
Acetic acid	...	Yes	...	...	...
Methane	...	Yes	Yes	Yes	...
Ethylene	...	Yes	...	Yes	...
Acetylene	...	Yes	Yes	Yes	...
"Unsaturated" hydrocarbons	...	...	Yes	Yes	No-Olefins
Carbon monoxide	Yes	Yes	Yes	Yes	...
Carbon dioxide	Yes	Yes	Yes	Yes	Yes
Carbon	Yes	Yes	Yes	Yes	...
Hydrogen	Yes	Yes	Yes	Yes	...
Water	Yes	Yes	Yes	Yes	Yes
Hydrogen peroxide	...	Trace	...	...	...

To be sure, much study has already been devoted to hydrocarbon oxidation. The reactions are complex and lead to mixtures of products, frequently substances of little value such as oxides of carbon which are obtained in largest amount. But as one analyzes the work which has been done, the impression gained is not that of the completeness, but rather of the fragmentary state of our knowledge. One result of oxidation on a large scale is the production of a mixture of formaldehyde and methyl alcohol from natural gas as a by-product in carbon black manufacture. There is no doubt that many other oxidations can be made useful. The vastness of the field, and the rich rewards awaiting those who can direct these reactions, as yet largely uncontrolled, to the production of useful products, make it an enticing opportunity for research.

The oxidation of the gaseous hydrocarbons has attracted attention at least since the time of Volta, who supposed that the aurora borealis might be due to combustion of methane in the air under the influence of lightning. One almost regrets that Davy conclusively disapproved this interesting hypothesis by showing that when diluted with more than 17 parts of air, methane will not burn.

Products From Oxidation

The studies carried on since early times have shown that although the gaseous paraffins do not react with oxygen in anything like the dilutions in which they occur in the atmosphere, they nevertheless undergo diverse oxidation reactions giving rise to nearly every product theoretically possible. In the literature on their oxidation one finds, in addition to the ultimate products, water and carbon dioxide, the identification of hydrogen, carbon, carbon monoxide, alcohols, aldehydes, acetone, acids, saturated and unsaturated hydrocarbons, resins, (probably aldehyde polymers) and traces of hydrogen peroxide. The difficulty of controlling the reactions to give a single desired product is to be attributed to the greater ease of oxidation of many of the primary oxidation products than of the paraffins used as starting material.

Carbon monoxide, carbon dioxide and water have usually been the chief products obtained in the many experiments which have been made on the slow oxidation of methane. Bone and his coworkers proved, however, that formaldehyde is formed in the early stages of the oxidation, and in some of their experiments they also detected formic acid. Winter obtained small amounts of free carbon when purified mine gas (methane 80 per cent, nitrogen 20 per cent) was exploded with air or oxygen. According to him, the free carbon did not arise from the incomplete combustion of methane, but from an equilibrium in which carbon dioxide and hydrogen participated. Hydrogen often appears in the reaction when an amount of oxygen insufficient for complete combustion is used.

None of the earlier work showed methyl alcohol to be in the oxidation products of methane, but in 1922 Elworthy stated that under the action of the silent electric discharge, mixtures of methane and oxygen gave a viscous liquid containing methyl alcohol, along with formaldehyde, polymerized aldehydes, resins and formic acid. The formation of other aldehydes and of resins may be due to the polymerization of formaldehyde, which under favorable conditions is produced in relatively large quantities. Aldehydes, formic acid and traces of alcohols have also been produced by the oxidation of methane with ozone.

Summary of the Substances Produced by the Oxidation of Methane, Ethane, Propane, Butane and Iso-butane

A recapitulation of all of the substances which have been found as products of the oxidation of the gaseous paraffins is given in the tabulation. The blanks in this table, to a considerable extent, indicate gaps in our knowledge rather than the proven nonformation of the listed substances.

Suggested Problems

There can be no doubt that the oxidation of the gaseous paraffin hydrocarbons is a subject of rich promise about which far too little is known. The mechanisms of the many sided reactions, are, to say the least, highly uncertain. The experimental data are in many cases conflicting, indicating that all the conditions affecting the experiments have not been taken into account or accurately described by the various investigators. Apparently there are equilibria involved, inviting studies in kinetics. The oxidation of the gaseous hydrocarbons in the presence of hydrogen so as to show preferential oxidation has been studied just enough to indicate its interest and complexities. The investigation of the action of chemical oxidants has but begun, while little attempt has been made to accelerate or retard the chemical oxidation of the gaseous paraffins by catalytic means. There is particular need for more study of the oxidation reactions of propane, the butanes and 2,2-dimethyl propane.

The following problems are suggested as offering opportunities for investigation:

A.—Mechanism and Course of the Reactions

1. Investigation of the dissociation of gaseous paraffins during oxidation.
2. Work on the mechanism of formation of unsaturated hydrocarbons in oxidation reactions.
3. Determination of the order in which alcohols, aldehyes, hydrogen, carbon monoxide, carbon dioxide, and free carbon are formed in the oxidation reactions.
4. Comparison of the steps and mechanisms of the following types of oxidations.
   (a) Slow oxidation with air or oxygen.
   (b) Explosive combustion.
   (c) Oxidation by means of ozone.
   (d) Catalytic oxidation.
   (e) Oxidation by use of chemical oxidizing agents.
5. Study of the oxidation of the gaseous paraffins by mixtures of chlorine or other halogens with oxygen, air and ozone respectively.
6. Comparison of the oxidation of n-butane and of iso-butane.

B.—Equilibria and Kinetics

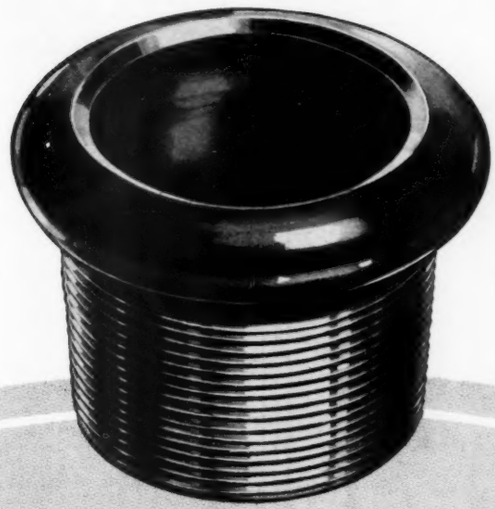
1. Investigation of the reversibility or irreversibility of the steps in the oxidation reactions.
2. Study of the equilibria produced by the reversible reactions and the shifting of these equilibria by variations in temperature, pressure and time.
3. Observation of the effects of temperature and pressure on the velocities of single oxidation reactions.

C.—Catalytic Oxidation and Preferential Combustion

1. Study of the rates of oxidation of single hydrocarbons in mixtures with other gases and of hydrocarbons themselves in admixture as influenced by temperature, pressure and catalysts.
2. Effect of the presence of knock suppressing and also of knock inducing substances on the rates of oxidation of the gaseous paraffins.
3. Influence of traces of water on the rate and course of the oxidation reactions. Is the presence of water essen-

(Continued on Page 173)

*Abstract from Chemical Reviews, March, 1929.



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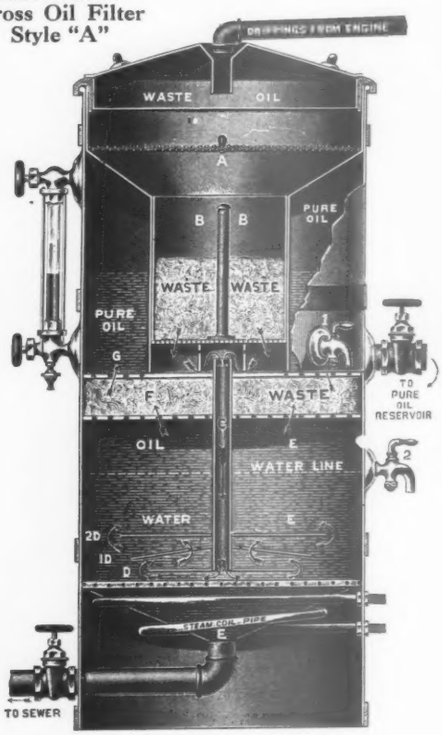

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ADVICE ON OPERATION AND CARE OF PLANT ELECTRICAL EQUIPMENT

By Clifford Clegg*
Manager, Texas Electric Service Corp.

The discussion of operation and care of electrical equipment used in the natural gasoline industry covers a wide scope, for not only are a number of companies operating gasoline plants but, also pump stations, and oil wells. As the time is too limited to discuss the ramification of details pertaining to all electrical equipment used in the various phases of the industry I will devote my time to the direct current generator, lighting equipment, induction motor and oil well motor equipment, as these particular items I believe are of the most interest to the average plant operator.

We will start with the installation of the direct current generator, taking up general operation instructions, and then discuss the average troubles and remedies.

At installation the machine should, if possible, be placed in a cool ventilated position which is free from dirt or moisture. Machines required to operate in damp places should have the coils specially treated. The foundation should be solid to prevent vibration. If the machine is belted, the belt tension should not be too great, the distance between belt centers too short, or the pulley too small; the pulley should not have a diameter less than that recommended by the manufacturer, as usually too great a belt tension is necessary to deliver the required power on too small a pulley. The belt should be flexible and without jumpy joints and the bottom side should be the tight side. After erection, clean the bearings by pouring in gasoline and draining, then fill the bearings with light mineral oil. Before starting check to see that there are no loose parts and that the brushes are making firm contact.

In starting generator for the first time bring slowly up to speed with the field circuit open and see that the oil rings operate properly; then close the field switch and bring the voltage up to normal. Run the machine without load for fully an hour, after which the load may gradually be picked up and increased.

Operating Instructions

Keep oil away from the commutator and windings, and when necessary to clean the commutator use a piece of muslin moistened with vaseline. Emery is a conductor and therefore should not be used on the commutator for any purpose. In case of a hot bearing developing do not stop quickly but slow down the machine and apply good clean oil. A quick shutdown will cause the bearing to "freeze."

Any generator should be run without sparking with the brushes fairly quiet on the commutator, and with a gloss on the commutator surface resulting from its operation, however, any good generator for various reasons may give trouble from sparking. First, the commutator surface may not be perfectly smooth after receiving its last turn off. The work may have been poorly done by the manufacturer, with the result that the commutators, is that the brush does not smooth is somewhat rough. The result of this, especially with high speed commutators, in that the brush does not make first-class contact with the commutator surface, and it may chatter with attending noise and sparking. As a result, the commutator surface, instead of becoming bright and smooth with time, becomes rough and dull or raw in appearance; the brushes do not make a good contact, and hence the heat generated even under proper commutator conditions, owing to the resistance of brush contact, is multiplied several times, with consequent increase of temperature of the commutator. In addition the friction of brush contact is, with a rough commutator, much higher than it should be, which helps to increase the temperature.

All this trouble is cumulative, so that the result finally is that the temperature will rise to a point where the solder in the commutator will melt, perhaps short circuiting or open circuiting the winding, with consequent inability to operate. A commutator will stand slight sparking, but where it is noticeable and where it is continued for long periods of time, trouble as indicated is liable to result. Where, however, the load is very light, quite a percentage of the time the full load or perhaps overload being on but little, a smoothing up occurs during the light period, which averts trouble.

A further and more serious cause of sparking is due to the fact that the commutator may not be "settled" when shipped by the manufacturer. A commutator is made of many parts, insulated one from the other, and all bound together by mechanical clamping arrangements. The segments themselves are held by a clamp on each end, which must be insulated from them and hold each segment individually from any movement relative to another. Since the clamp must thus touch and hold down all the segments, a failure to do so in any case results in a loose bar, which moving relatively to the next causes roughness and thus sparking, with all the attendant accumulative troubles. The roughness of commutators due to poor turning or to poor design is shown uniformly over all the surface of the commutator on which brushes rest. A roughness due to a high or loose bar is shown by local trouble near the bad bar, and its corresponding bars around the commutator, the jump of the brush occurring there and being the cause of the sparking.

To Correct Rough Surface

The proper way to correct a rough surface due to poor turning is to grind the surface with a piece of ordinary grindstone, cut to convenient size to be held in the hand, and, if possible rounded to the shape of the commutator though the rounding is not absolutely necessary except when the surface is exceedingly bad. This grinding can be done without removing the brushes from the commutator and during the ordinary operation of the generator. When the sparking is due to poor turning, such grinding causes sparking to entirely disappear. This is also a good method of cleaning the surface of brushes which have become coated with copper from the use of sand paper in fitting them to the commutator surface.

Some kinds of sand paper, if used to give the brush surface or to smooth a commutator with the brushes down, imbed in the face of the brush hard material which sticks there, cutting the commutator, and thus collecting about itself copper from the commutator. An examination of the face of the brush after running a time will show these collections either in spots or all over the face of the brush. The sand stone, used as suggested removes all this.

Where, however, the roughness and sparking are due to a loose bar, grinding will do no particular good. Under such conditions a different process of correction must be followed. It consists first in getting the clamps which hold down the segments to touch and hold, each one preventing any relative movement of the bars, and after this is done, to get a smooth surface by turning, if the bar is much displaced, or by grinding if it is but slightly displaced. The process of correcting a loose commutator therefore appears as follows:

The first proposition is to get the clamps of the commutator down firm, so that when the commutator is at normal temperature no further screwing up on the clamping rings can be done without excessive effort. This is necessary in order that all the bars may have a direct pressure from the clamps, thus rendering any movement up and down impossible. The second proposition, after getting the

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clamps down, is to obtain a smooth surface which is done as mentioned above.

Open Armature Circuit

Another cause of sparking on a commutator is an open circuit in the winding, either in the armature body or, more often, where the lead from the armature winding is soldered to the commutator. In the latter case resoldering is an easy matter. If, however, the location of the open circuit cannot be found, the bars can be bridged over on the commutator itself by fastening with solder or otherwise, a strip of copper around the segments which indicate the break.

This indication is very apparent, for, if an open circuit exists, the long heavy spark which accompanies it promptly eats away the mica between the two segments which are on each side of the break, and this shows positively where to do the bridging over. It is unlike any other kind of commutator sparking, being heavy, long and destructive in its action.

Tests for Open Circuit

Another method of determining an open circuit in an armature is to apply to the commutator at two opposite points a low voltage, say from a battery, through an armature. Have the terminals leading the current into and out of the commutator small in cross-section where they will rest only on a single segment, then note the current in the ammeter and rotate the armature slowly. Where the open circuit exists the ammeter deflection will go to zero.

Tests for Armature Short Circuits

This test is called a bar to bar test, and is most valuable in locating faults in armatures. It is the method to use if a short circuit is suspected from one segment to another, and consists in connecting a volt meter to two adjacent segments, while current is passed through the armature from some external source as above. Note the deflection of the volt meter and pass from segment to sequent recording the drop between the successive pair of bars. This drop should be the same between any pair of adjacent segments. When the part in which a short or partial short exists comes under the contacts, a low or perhaps no deflection is shown on the volt meter, thus locating the defective place.

Such short circuits, if occurring when running, owing to defective insulation, burn out the coil short circuited, since it passes through the active field in front of the pole piece, and immense current is induced in it causing a destruction of the insulation. When this occurs the coil should be open circuited if the burning has not already accomplished it, and, if practical, be bridged over.

So much for the generator. Now let us go into the general characteristics of the induction motor, which in general gives less trouble than the direct current motor or generator, however, on which faults develop occasionally which are exceedingly puzzling, causing annoying delay.

It should be borne in mind that the induction motor at any given voltage has a limit to its output, which if exceeded results in the motor stopping until the excess load is removed. The usual squirrel-cage induction motor is designed to carry for a limited time, without danger of breaking down from 25 to 50 per cent over its rated load. For special purposes, the maximum output or breaking down point is from two to five times its rated output, depending upon the conditions to be met, but, the larger the maximum output in a given size of motor, the poorer is the efficiency, power factor, etc., at normal load. To get excellent all-around results it is desirable to choose a reasonable value for the maximum output of the motor.

Induction Motors

In an induction motor, the interesting characteristics to a purchaser are:

1. Efficiency. That is, the ratio of the energy given out by the motor to the energy put in.

2. Maximum output, that is, the highest horsepower that the motor will carry without slowing down, unduly, in speed, or perhaps altogether.

3. Current taken at the instant of starting sometimes called the impedance current. When the switch is thrown on an induction motor, there is a rush of current that on a poor motor outfit causes disturbances of voltage on the line to which the motor is connected, thus giving occasion for complaints, especially if the circuit is supplying lights. If no lights are on the circuit, the disturbance may extend to other motors on the circuit, causing trouble with them.

4. Current taken when running without load. On an induction motor, the field is produced by a current drawn from the line through the same wires that supply the energy. This current, called the magnetizing or wattless current, lags behind the electro motive force, and pulls down the voltage of the circuit, from which it flows to a much greater extent than an energy current, so that it is desirable to have as small a magnetizing current as possible.

Sometimes, in the operation of induction motors there is trouble from blowing fuses, or possibly more serious trouble while the fuses do not blow and the motor, perhaps humming loudly comes to a standstill. Under these conditions, the current may be 10 times the normal amount, so that the heating effect, being increased 100 fold, causes the machine to burn out its insulation.

Since the torque or turning power of an induction motor is proportional to the square of the applied voltage, it can be seen that lowering the voltage has a positive effect upon the ability of the motor to carry load, and may be the cause of its stopping. Another cause for this trouble may be that the load put upon the motor is more than the designed maximum output.

For some reason, the bearings may have become worn, so that the air gap, which with everything normal ordinarily is not much over .04 of an inch, and on small motors runs down to .015 of an inch, has been gradually reduced at the bottom to practically zero. Then, the point is soon reached where the armature commences to rub on the field. The friction soon becomes so great that the load represented by it is more than the motor can carry, with the result that it shuts down. Sometimes a shut down may be due to hot bearings introducing an excess friction, which, added to the regular load of the motor, gives a total load greater than the maximum output. Hot bearings, in turn, may be to excess of belt tension, dirt in the oil, oil rungs not turning, or improper line up of motor to its load; hence under such conditions, it should be found out whether the voltage has been normal, whether the air gap is such that the armature is free from the field and whether the load imposed upon the motor is more than that for which it was designed. In fact, in any installation of induction motors, it is well to have a system where a regular inspector sees to the air gap, bearings, etc., at regular stated times.

Most squirrel cage induction motors are started with compensators or auto transformers. These are connected to the motor, reducing the line voltage on the system to a lower voltage at the motor. When the motor has started and is turning freely, the compensator switch is thrown so that the full voltage is put upon the motor. Since the current required at starting has a certain value when a compensator is used, the current drawn from the line is reduced by the ratio of the compensator reduction. Thus, if the compensator has a ratio of 1 to 2 and the field voltage is 100 on the line and 50 on the motor at starting, and the motor takes 50 amperes, only 25 ampers would be drawn from the line and thus the motor at starting would have less effect on other apparatus connected with that line. Sometimes a motor connected to a compensator takes more current at starting than it should, under which conditions a lower tap should be tried, as compensators are usually supplied with various taps and the one should be chosen which produces the least disturbances on the line, giving at the same time the desired starting torque on the motor.

When the motor will not start, having been connected to a compensator, the cause may be entirely in the compensator, which may have become open circuited due to a flash within or from bad contact of the fingers. The compensator

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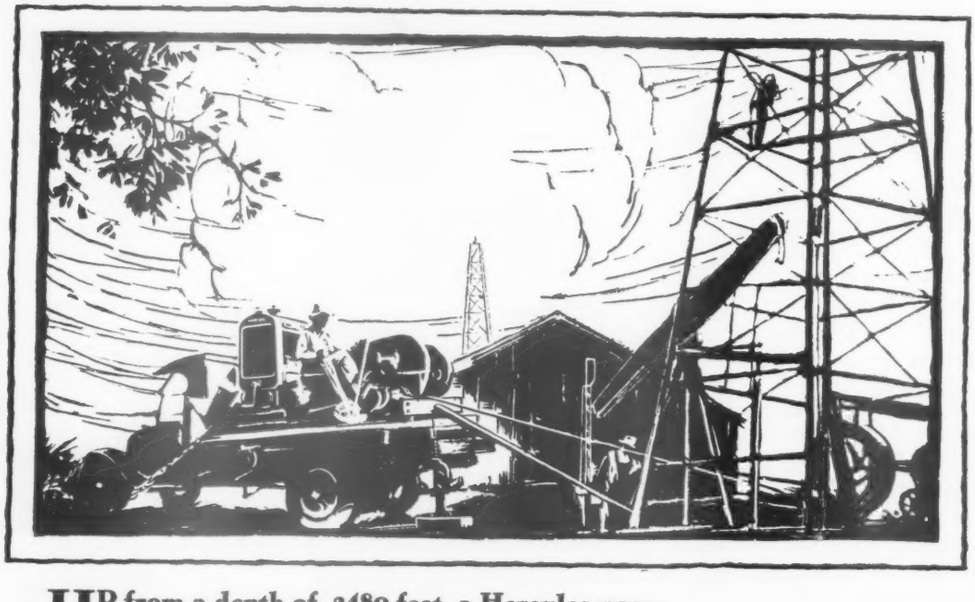

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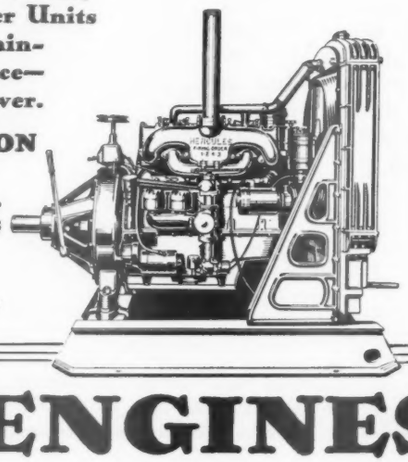

HERCULES ENGINES

switch may have become deranged, so that it will not close, or a connection may have become loosened. To check for this trouble, an ammeter in the motor leads would show the absence of current, or a voltmeter would show the absences of voltage between the line.

Oil Well Motor Equipment

Installation arrangement.

For cable-tool drilling and for pumping and pulling with the standard American oil well rig, it is standard practice to belt from the motor to a countershaft and from the latter to the band wheel, in order to operate the bandwheel at the required speed. Place the motor between the countershaft and the bandwheel, so that both belts pull on the countershaft in the same direction. If the motor is placed on the side of the countershaft farthest from the bandwheel, the opposite belt pulls will probably twist the countershaft out of alignment.

Foundations and Assembly

Rigidly support the motor and countershaft on heavy timbers or concrete foundations, level, align and bolt securely in place. Undue vibration may result unless these instructions are followed.

Build the countershaft foundation at the same location that the engine block is usually placed, or as near to it as practicable.

The controllers, registers and oil circuit breaker should preferably be all mounted on angle iron or pipe frame work. Use 1½-inch spacers between the staked registor sections.

The motor and framework for the control equipment may be mounted together on skids of heavy timber, such as 12-inch by 12-inch or 14-inch by 14-inch, thus enabling them to be handled as a single unit and to be completely wired up in the shop before installation at the well. However, such units are awkward and heavy to handle, especially when installations are made on a large scale, and the cost of the skids is high. It is recommended, therefore, that the control framework be assembled on light skids and be well anchored when installed, and that the motor and countershaft be handled separately and mounted on concrete or heavy, well braced timber foundations.

Position of Terminal Plate and Pole-Changing Switch on Motor

Standard practice is to locate the terminal plate and pole-changing switch of the two-speed pumping motors on the right-hand side of the motor frame, viewed from the pulley end. The same practice is followed for the terminal plate on drilling motors when built to order, but those obtained from district warehouse or factory stock will have the terminal plate on the left-hand side, viewed from the pulley end. If it is more convenient to have it on the opposite side, proceed as follows:

1. Remove the pulley and key. (If the pulley end shield is split, it can be taken off without removing the pulley.)
2. Drain off the oil from both bearings.
3. Remove the pulley end shield.
4. Remove the rotor, being careful not to injure either it or the stator. (If necessary, the front end shield can be removed first and the rotor taken out from that end.) A rope sling and small chain hoist furnish an easy method of removing the rotor. Use a wooden spreader bar of proper length to prevent the rope from drawing against the windings and slip-rings. The best way to support the rotor when removed from the motor is by blocks under the shaft. Never set the rotor on the floor without a thick pad under it.
5. Remove the front end shield, being sure to lift the brushes first, and replace the rotor, turning it end for end.
6. Replace the end shields, being sure that the brushes are lifted, and using care not to injure the oil rings. With solid shields this can be easily accomplished by sliding them on the shaft upside down. With split end shields, first place the lower half of the end shield in position, with the bearing linings removed, and bolt it to the frame. Wipe out the bearing carefully and rub a little oil on the shaft. Raise the end of the shaft a little and place the lower half of the bearing lining on top of it, slipping it into position by turning it underneath. Place the oil rings in position, making sure that they have not been bent out of shape, and put on the top half of the end shield to the frame, but do not tighten the bolts. Loosen the bolts in the lower half and bolt the two halves together, after which tighten all bolts which secure the end shield to the frame.
7. Check the air gap.
8. After all bolts are tightened and it is ascertained that the rotor revolves freely, fill the oil reservoirs.

Location of Motor Base and Adjustment of Belt

Best results are obtained by setting the motor base so that the adjusting screw comes on the side of the motor opposite the belt. Locate the base so that the sliding of the motor on it will give the required adjustment in belt tension. See that the location of the base or the length of the belt is such that the motor will be located nearly at the end of the adjustment toward the countershaft, still providing room for slightly loosening the belt if it should be necessary to remove it.

The use of endless belts is recommended. Avoid excessive tension by using belts of proper width, for which a rough check is as follows: With single leather belts, one inch width will transmit 1 horsepower for each 1,000 feet per minute of belt speed up to 5,000 feet per minute; with double leather belts, 1.4 horsepower for each 1,000 feet per minute; with triple leather belts, 1.9 horsepower for each 1,000 feet per minute. Four-ply cotton belting is considered equivalent to single-ply leather.

Place the pulley close to the bearing. Run the smooth side of the belt next to the pulley.

In mounting the motor on the sliding base, see that the rectangular washers on top of the base are properly located in the grooves, that is, snugly fitting either one side of the groove or the other. Place the nuts on the four bolts holding the motor in place, but do not tighten them up. The belt may now be tightened by means of the adjusting nut, making it just tight enough to carry the load without slipping. When the proper tension is obtained, tighten the nuts on the motor holding-down bolts.

Rope Wheels and Telegraph Cord—A grooved rope wheel is provided on each controller for operating it by a standard wire telegraph cord extending to the headache post, using a separate wheel for each controller with drilling equipments. Put the telegraph cord around the pin or through the hole on the rim of the controller wheel, so as to prevent slipping. Tension can be maintained by using a small turnbuckle in each telegraph cord.

Provisions for Emergency Stop—It is recommended that a push button station, for opening the oil circuit breaker in an emergency, be placed at the headache post or in any other convenient location at the derrick. Place it at the same location on all rigs. Use a type BS-221-A push button station and wire it to open the circuit of the undervoltage release coil of the oil circuit breaker, as shown on the wiring diagrams.

Operation (All Equipments)

Before Starting—Before starting a motor for the first time:

1. Make sure that all bolts, nuts and screws are tight, and that the collector rings and other parts are clean.
2. Turn the rotor by hand, with the belt off, to see that it runs freely.
3. Make sure that the oil plugs are tight and that the oil reservoirs are filled as described under Oiling.
4. Check all external wiring connections with the diagrams.
5. See that the main controller is in the "off" position.
6. Be sure that the pole-changing switch mounted on the two-speed pumping is closed.
7. Remove all tools and other loose articles from the motor and its foundation and from the belts.
8. Be sure that the line voltage corresponds with that stamped on the motor name plate. This is important, because on reduced voltage the starting and maximum momentary running torque of an induction motor are reduced in propor-

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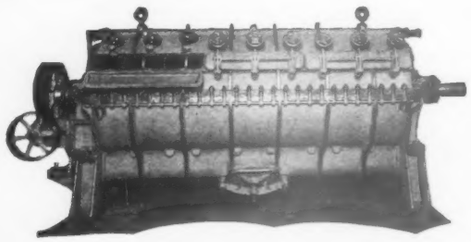

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tion to the square of the voltage at the motor terminals. The motor may be safely operating at 10 per cent below normal voltage, but feed wires of liberal size should be used and careful attention should be given to the regulation of the supply voltage.

Starting:

1. Close the oil circuit breaker, with the main controller in the off position.
2. Move the main controller firmly point by point, bringing the motor gradually up to the speed desired.
3. When starting for the first time and as soon as the motor is up to speed, see that the oil rings turn freely.
4. Before putting the motor into service the first time, operate it without load long enough to determine that there is no unusual localized heating.

Stopping:

1. For a temporary stop, return the main controller to the "off" position.
2. For a final stop, trip open the oil circuit breaker either before or after returning the controller to the "off" position.
3. For an emergency stop, from the derrick, operate the emergency stop push button and then return the controller to the "off" position. If in the motor house, stop as in (2).

Care and Adjustment (All Equipment)

Oiling—Fill the oil reservoir of the motor bearings through the oil filler at the side of the bearing, which serves as an overflow oil gauge as well as a filling device. Do not pour the oil into the sight holes in the top of the bearing cap. Use pure refined mineral oil (not crude oil, and not vegetable or animal oil), and fill up to one-sixteenth inch of the top of the oil fillers.

To avoid incorrect oil level, never fill the reservoirs when the motor is running.

After the motor has operated the first week, draw off the oil, pour fresh oil or kerosene through the bearings to wash out all sediment, then refill. When replacing the drainage plugs, dip them first in a mixture of red lead and shellac. Tighten them securely to prevent leakage, and make sure that the oil rings are in their proper position and turn freely.

Refill the bearings at regular intervals, the frequency depending upon local conditions such as cleanliness, severity or continuity of service, etc.

The controller fingers and segments and the other points of contact of all devices should occasionally be slightly lubricated with vaseline.

Inspection—To insure the best operation, make a systematic inspection of each equipment at least once a week. Points to be given special attention are as follows:

Cleanliness — Keep both the interior and exterior of the motor free from water, dirt, oil and grease; the control devices should also be kept similarly clean. Wipe the exterior, and clean the interior with a small bellows.

Gasoline or carbon tetrachloride may be used for cleaning the motor windings.

Bearings—Prevent excessive heating and wear by providing proper lubrication and avoiding too great belt tension or bad alignment.

Do not allow the motor bearings to become worn loose, as there would be danger of the motor rubbing on the stator. The air gap can be checked by a minimum gauge which may be obtained from the company. When it does not enter freely at all points, the bearings should be replaced. If rebabbitted, they must be accurately centered.

Motor Brushes and Rings

See that the brushes move freely in the holders and that they make firm and even contact with the collector rings.

Keep an extra set of brushes on hand. Order new ones by the catalog number on the part nameplate.

Occasionally take the brushes out of the holders and wipe brushes and holders clean. Put each brush back in the same holder and in the same position.

If the collector rings become rough, smooth them up with fine sandpaper (not a file or emery cloth), with the motor running at low speed. Be sure the brushes are not stuck in the holders.

If the brushes spark and become badly pitted or do not fit the rings properly, the remedy is as follows:

Cut some fine sandpaper (no emery cloth) into strips a little wider than the ring, and insert a strip between one brush and the ring, with the rough side toward the brush and all other brushes raised. The motor should not be running. Holding the brush down on the paper, draw the latter out, holding it close to the ring to prevent rounding off the edges of the brush. Repeat until the brush bears evenly on the ring, drawing the sandpaper in one direction only and raising the brush when the paper is returned. Draw the sandpaper in the same direction that the motor runs when pumping, or, on drilling motor, when drilling.

Fit all the brushes in this manner, then blow or wipe out the dust carefully.

Motor Heating

Do not depend on the hand to determine the temperature of the motor, use a thermometer. If there is any doubt about safe operating temperature, take a temperature reading of the windings and confer with the nearest office of the company, giving full details.

When excessively hot, the motor can be most quickly cooled by throwing off the bull rope or disconnecting the walking beam and running the motor at full speed without load.

Controllers

Occasionally examine the fingers and contact segments of the controllers. If rough, smooth them with a medium or fine file and sandpaper (not emery cloth) and lubricate them slightly with vaseline. If badly worn, replace with new parts.

The controller fingers should be so adjusted with relation to the cylinder segments that when the cylinder is turned they will not lift more than one-eighth inch nor less than one-sixteenth inch. The pressure of the finger on the segment on the line of contact should not be less than 5 pounds nor more than 6 pounds. These adjustments insure good contact.

Caution

1. When handling any part of the motor or controlling apparatus or when tightening the belt, open the oil circuit breaker by means of the hand trip. Do not touch any live wires or live parts of the apparatus at any time.
2. Loosen the foot bolts in the motor whenever it is shifted to adjust the belt. Tighten the bolts when finished.
3. Run the belt as slack as possible.
4. Trip the oil circuit breaker once a week by raising both of the overload plungers with the finger. Keep the circuit breaker cover bolted tight.
5. When a fuse blows, open the main disconnecting switch before replacing it by a new one. Do not use wire, nails or pieces of metal in place of fuses. If fuses continue to blow, investigate the cause.

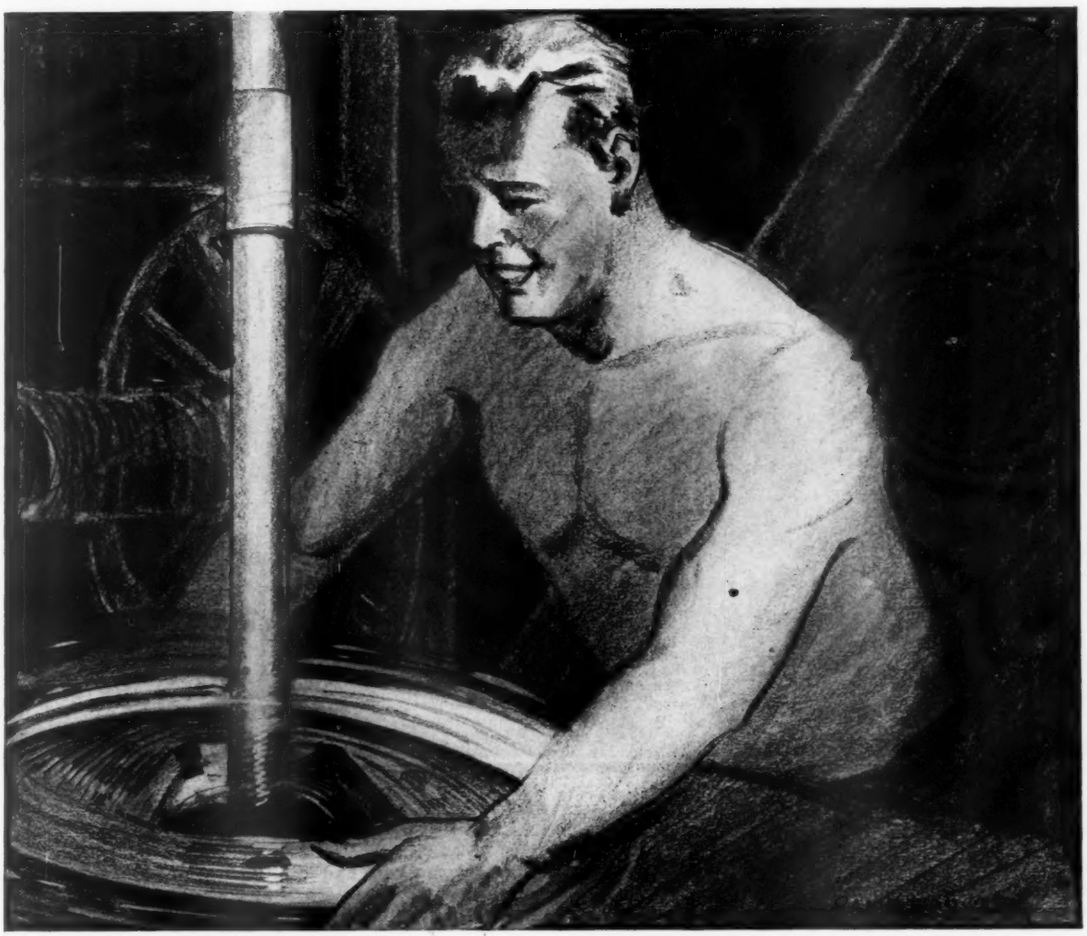
Keep extra fuses of the right capacity on hand.

6. Do not remove, plug or tie up the overload trips on the oil circuit breaker. Continued tripping indicates excessive load or incorrect adjustment.
7. Do not throw the controller full "on" or full "reverse" at one motion. Notch it up a few points at a time.
8. Do not handle the work with fewer lines in the derrick than would be done with an engine.
9. Do not use the motor for a brake. Always use the bull-wheel or calf-wheel brake.
10. Do not let rods, tubing, casing or tools coast into the well faster than the motor pulls them out unless the bull-rope is off and the calf-wheel sprocket is unclutched.
11. Do not place tools or other objects on the motor, resistance grids or belts.
12. In warm weather leave the motor house door open, except when stormy.

Interior Lighting of Gasoline Plants

We will naturally assume that all lighting circuits in gasoline plants are wired in rigid iron conduit under the rules of the National Electrical Code, as this method provides the safest and most satisfactory method of electric wiring yet developed, but even with a safe wiring installation, due to the fire hazard caused from a spark or flash there are several warnings which should constantly be kept before the operators.

1. Never place an entrance switch in a



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"Here, Lad—

You've been telling me that the Lincoln people were FIRST to build an arc welder, FIRST to apply arc welding to buildings, bridges, etc.

Now here I read the ad of another company saying they were responsible for the advent of arc welding. Now, *both* can't be right."

The Lincoln
"Stable-Arc" Welder
—welds easier
—makes better welds
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because of the steady uniform arc throughout entire welding range, which is the result of:

Variable voltage design
Laminated magnetic circuit
Separately-excited generator field
Double control of welding heat
All steel construction

No other welder has all these features.

"Sure, Pop—

every man who had an eye on or a hand in arc welding in the pioneering days—now says 'I told you so' and that makes him a pioneer.

What I told you about Lincoln FIRSTS are facts of record, but that's relatively unimportant.

The important point is

—by reason of Lincoln's longer interest in the subject
—by reason of that interest being more intense (arc welders being their specialty)
—by reason of Lincoln's wide-spread development work with manufacturers in hundreds of fields

a much better machine has been built than could have been the case with lesser qualifications.

That's why I won't argue about pioneering.

I'd be glad to class everyone immediately following Lincoln as a pioneer even if he only attracted attention to arc welding and in this sense I'd even class Doc Cook as a polar pioneer."

The Lincoln Electric Co., Dept. No. 26-3, Cleveland, Ohio

"Stable-Arc" LINCOLN WELDER

W-75

place where there is danger of an explosion, because at any time a knife switch is opened and there is any load on the circuit a momentary arc or spark is created which might cause disaster.

2. For the same reason see that all lamps are covered with vapor proof fixtures as a guard against some light blow breaking a lamp globe while burning and causing a flash.

3. Do not use lamp cord for extension cords as they are too easily worn out and shorted which also would cause a momentary flash before blowing a fuse, but use a heavier insulated duplex cord, and be sure to use a lamp guard to protect the lamp from breaking.

4. Never plug a fuse, or overload any circuit where it is necessary to over fuse, in order to carry the load.

5. In engine rooms where the vibration causes frequent replacement of lamp globes, install mill type lamps, which are of sturdier mechanical construction and will last longer than the average lamp, thereby cutting operating costs.

6. One last caution which applies to all electrical equipment is that in case of any electrical fire developing from any cause do not pick up the first extinguisher at hand but use only those chemical extinguishers using "carbon tetrachloride fire extinguisher liquid," as this is the only chemical suitable for extinguishing an electrical fire, and many other types of extinguishers excellent for normal fire only aggravate conditions when used on an electrical blaze.

EASTERN FIELDS

(Continued from Page 64)

terial at a location on the William Living farm. In Ten Mile district, Harrison County, J. R. Dennis & Co. have started to drill on the L. W. Shahan farm.

In Ten Mile district, Harrison County, Clar Ross & Co. have started to drill on the L. Williams farm. In McClellan district, Doddridge County, the Starkey Oil Co. has rig material at a location on the Jacob Flanagan farm. In McElroy district, Tyler County, Headley Brothers have started to drill on the Isaac R. Smith farm. In McClellan district, William Moses and J. V. Raad are due in the Big Injun sand on the W. T. Lyons farm. In the same district, Godfrey L. Cabot is due in the same formation on the Lee Lyons farm. In Church district, Wetzel County, the Pure Oil Co. has the rig completed for a second test on the Cole heirs' farm.

Murphy District

In Murphy district, Ritchie County, Park Bowser is rigging up on the W. H. Baker farm. In Jefferson district, Lincoln County, the Cecilia Oil & Gas Co. is due in the sand on the Croft Land Co.'s property. In Duval district, the Downing Gas Co. has shut down to repair the rig on the Ned Davis farm. In Scott district, Boone County, the Cameron Gas Co. has started to drill on the W. L. Stone farm. In Geary district, Roane County, the United Fuel Gas Co. has started to drill on the E. R. Conley and W. W. Ogden farms. The same company has a rig up on the John C. Nelson farm. In Geary district, the Elkins Oil & Gas Co. has started to drill on the Stacie Moss farm. In the same district, the Hollywood Oil & Gas Co. is now drilling on the George White farm. In Spencer district, H. W. Bowers has rig material at a location on the D. D. Snodgrass farm.

SOUTHEAST OHIO

Two fair producers are reported from the deep sand territory in Southeast Ohio. In the northeast quarter of Section 1, Perry Township, Licking County, the Kunz-Huldz Co., Inc., completed in the Clinton sand No. 7 on the Joseph Chaney farm. It flowed 105 bbls. the first 24 hours. This is the largest well completed in Licking County for several months.

In the southwest quarter of Section 14, Perry Township, Coshocton County, the Preston Oil Co. completed a second test on the R. E. Vanwinkle farm. It produced 55 bbls. the first 23 hours.

Hocking and Muskingum Counties

In the northeast quarter of Section 23, Washington Township, Hocking County, the Gordon Oil Co. has completed in the Clinton sand No. 3 on the R. C. Brimner No. 2 farm. It is a duster. In the northeast quarter of Section 5, Licking Township, Muskingum County, the Hope Construction & Refining Co. completed a second test on the Almeda Butler farm. It is a 10-bbl. pumper in the Clinton sand.

In the southeast quarter of Section 24, Jefferson Township, Noble County, Joseph Sailing and others have completed a second test on the Alice Feldner farm. It is an 8-bbl. pumper in the Maxon sand. In Section 28, Elk Township, F. D. McGaryelty has completed a test on the Fred Shringer farm good for 2 bbls. a day in the Germantown sand.

In Section 1, Jefferson Township, H. C. Morris has a duster in the Berea grit on his own farm. In the southeast quarter of Section 30, Jackson Township, Perry County, the Hub Oil Co. completed in the Clinton sand a test on the Mary Larimer farm. It produced 20 bbls. the first 24 hours. In the northeast quarter of Section 12, Sutton Township, Meigs County, C. D. Sloan & Co. have a duster at No. 5 on the J. E. Stobert farm.

In the southwest quarter of Section 30, Coal Township, Perry County, A. H. Squires & Co. completed in the Clinton sand No. 5 on the E. S. Martin farm. It is a duster and abandoned. In Lot No. 2, Congress section, Wayne County, J. M. Williamson & Co. completed in the Berea grit a second test on the Lois & Co. farm. It is a very light pumper.

Medina County

In Lot 2, Section 12, Chatham Township, Medina County, the East Ohio Gas Co. has completed in the same formation a test on the Steven Jellencis farm good for 20 bbls. a day, which is better than the average for that section. In the northeast quarter of Lot No. 2, Spencer Township, D. A. Eaken has completed a duster on the Harvey Matz farm. In Section 32, Enoch Township, Noble County, Harper Brothers have a 5-bbl. pumper in the Macksburg 700-foot sand on the I. N. Harper heirs' farm.

In the northwest quarter of Section 18, Sutton Township, Meigs County, the Preston Oil Co. has completed in the Berea grit No. 5 on the Carl J. and William Easterday farm. It is a 5-bbl. pumper.

Southeast Ohio Tests

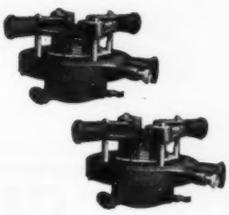
In Section 24, Sunbury Township, Monroe County, C. W. Paine and others are drilling on the E. A. and L. H. Dean farm. In Section 5, Jackson Township, Perry County, Perry Sturm & Co. have the rig completed on the Margaret M. Griggs farm. In Pike Township, the Yu-Sa-Kan Oil & Gas Co. and others are due in the sand on the R. E. Bennett farm. In Reading Township, the Preston Oil Co. has started to drill on the Tennyson Crist farm and a rig completed on the L. C. Bowman farm. In Harrison Township, the Ohio Fuel Gas Co. is drilling on the Andrew Brown farm and has a rig up on the Mrs. Charles Downey farm. The Leonard Oil & Gas Co. is drilling a second test on the J. H. Driggs farm. Perry County is still one of the most active in Southeast Ohio.

SOUTHWEST PENNSYLVANIA

In Cecil Township, Washington County, P. C. Mason and others have completed a 3-bbl. pumper on the John Cook farm.

In Richhill Township, Greene County, the Natural Gas Co. of West Virginia has completed No. 4 on the E. K. Gibbon farm. It is a 9-bbl. pumper in the Gordon sand. In Springhill Township, the Carnegie Natural Gas Co. has a gasser in the Gordon sand on the John Anderson heirs' farm.

In Hanover Township, Beaver County, McDonald and others have completed a test on the George Brubick farm. It is a 2-bbl. pumper in the Berea grit. In Darlington Township, Abrams, Murdock & Co. completed in the same formation No. 3 on the Mary Promick farm. It is a 3-bbl. pumper. In Perry Township, Greene County, the Carnegie Natural Gas Co.'s test on the Inghram-Wilson farm is a gasser in the Big Injun sand.



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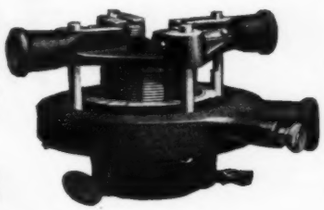

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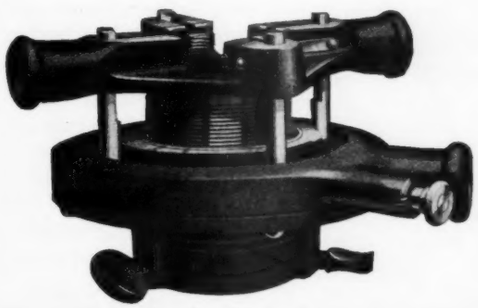

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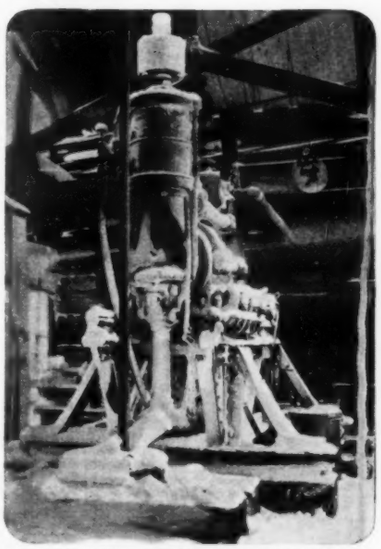

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NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Gray County

Wilcox-Pampa Oil Co.'s No. 1 P. Worley, 330 feet south and west of the NE cor. W half SE, Section 37, Block 3, I&G.N. Survey.

Moore County

Phillips Petroleum Co.'s No. 3-A J. T. Sneed, Jr. (James), 1,600 feet south and 430 feet west of the northwest corner of the J. W. Proctor Survey, and located in the M. Robinson Survey.

Wheeler County

Lone Star Gas Co.'s No. 1 J. Turnbow, at the C NE SW, Section 67, Block 17, H.&G.N. Survey. Swain & Miller's No. 1 E. L. Woodley, at the C NW NW, Section 21, Block 24, H.&G.N. Survey.

Carson County

Gulf Production Co.'s No. 6 J. L. Noel, 330 feet south and 1,320 feet east of the NW cor. SW, Section 198, Block 3, I.&G.N. Survey.

NORTH CENTRAL AND WEST TEXAS

Archer County

Gulf Production Co.'s No. 3 E. Alexander and others, 150 feet north and east of the southwest corner of Gulf Production Co.'s 120-acre lease out of Section 22, G. P. Meade Subdivision of L. M. Pasture. Magnolia Petroleum Co.'s No. 1 Mrs. A. B. Wallace, 150 feet south and east of the northwest corner of the east 20 acres of the west 40 acres of the north 80 acres of Section 11, Denton County School Land, League 3, A-117. Panhandle Refining Co.'s No. 1 J. W. Dowlen, 150 feet south and 1,500 feet east of the northwest corner of the J. W. Dowlen 264-acre tract out of Section 2, H.&T.B. Survey, A-1,240. Rathke Oil Co.'s No. 6 L. F. Wilson-A, 150 feet north, and 10 feet east of southwest corner of Lot 533, Geraldine Subdivision. The Texas Company's No. 2 J. R. Parkey, 200 feet south and 650 feet west of the northeast corner of Lot 4, Section 1, A.T.N.C.L. Survey. Underwood Drilling Co. and others' No. 1 J. J. Perkins, 2,298 feet south and 150 feet east of the NW cor., Section 10, A.T.N.C.L. Survey, being 450 feet south and 150 feet east of the northwest corner of their 40-acre lease (square). C. W. Boller's No. 1 Falls County School Lands, 450 feet north and 150 feet east of the SW cor. W half, Section 61, Falls County School Land. Freeman & Grebin's No. 1 D. L. Haralson, 150 feet south and east of the NW cor. NW, Section 19, G. P. Meade Subdivision, L. M. Pasture Survey. H. Hines' No. 1 R. N. Chancellor, 150 feet north and 800 feet west of the southeast corner of the H. Allsman Survey, A-753. Humble Oil & Refining Co.'s No. 1 J. H. Turbeville-A, 250 feet south and 200 feet east of the NW cor., Section 86, Jefferson County School Land, A-240. King-Looney and others' No. 1 L. L. Hudson-C, 450 feet north and 150 feet west of the southeast corner of the north 100 acres of Section 83, Club Ranch Subdivision. Pandem Oil Corp.'s No. 1 W. T. Richardson, 450 feet south and 150 feet east of the northwest corner of the west 80 acres of Section 2,425, T.E.&L. Survey. Petroleum Producers Co. and others' No. 1 A. M. Kunkel and others, 150 feet south and 750 feet west of the northeast corner of the south 40 acres of the north 80 acres of the NE, Section 3, B.B.B.&C. Survey, A-51. Prairie Oil & Gas Co.'s No. 1 J. T. Richardson-A, 150 feet north and 450 feet west of the SE cor. Section 12, Thomas McCoy Survey, A-269. Shell Petroleum Corp.'s No. 2 Abercrombie & Taylor-C, 150 feet south and 450 feet west of the northeast corner of the west 19.5 acres of the north 39 acres of the south 80 acres of Section 41, Club Ranch Subdivision. The Texas Company's No. 1 S. L. Scott, 370 feet north and 1,050 feet east of the southwest corner of the west 80 acres of the Jane James Survey, A-897.

Brown County

Cranfill & Reynolds' No. 1 H. J. Marr-B, 1,245 feet south and 1,649 feet east of the northwest corner of the H. P. Tuggle Survey No. 62, A-895, being 150 feet south and west of the northeast corner of the south 45 acres of the north 90 acres of the west 127 acres of the H. P. Tuggle Survey. Humble Oil & Refining Co.'s No. 14 A. W. Armstrong, 1,135 feet north and 1,209 feet west of the southeast corner of Lot 1, Juan Delgado Survey, No. 785. Same company's No. 20 J. T. Hodnett-A, 560 feet north and 1,738 feet east of the southwest corner of the Hrs. J. M. Harris Survey, No. 784. Syndicate Oil Co.'s No. 5 A. L. Curry, 900 feet south and 250 feet east of the northwest corner of their lease out of the E. L. Betts Survey, A-70. The Texas Company's No. 5 John Byler, 150 feet south and 800 feet east of the northwest corner of their lease out of the T.&N.O. Survey, No. 43. E. T. Green and others' No. 2 J. L. Riordan, 2,595 feet north and 2,950 feet east of the southwest corner of the C. B. Jennings Survey, No. 353. Hartt & Cole, Inc.'s No. 1 J. A. Johnson, 1,754 feet southwest of the northeast line and 450 feet southeast of the northwest line of the J. A. Johnson 130-acre tract out of the John S. Thom Survey, No. 53. Humble Oil & Refining Co.'s No. 1 H. J. Trevooren, 150 feet north and 1,015 feet west of the southeast corner of the south 80 acres of the NW, Section 11, H.&T. B. Survey. Prairie Oil & Gas Co.'s No. 2 J. P. Hargrove, 750 feet south and 1,226 feet west of the northeast corner of the Moses Little Survey, No. 40.

Clay County

Mid-Continent Holding Co.'s No. 2 J. D. Stine and others, 750 feet north and 450 feet east of the SW cor., Section 7, Parker County School Land, A-374.

Coleman County

T. B. Slick's No. 1 W. A. Roberts, 1,470 feet north and 1,170 feet east of the southwest corner of the D. J. Holt Survey No. 166. White Eagle Oil & Refining Co.'s No. 1 L. V. Eddington, 602 feet south and 327 feet east of the northwest corner of the Victoria County School Land Survey, No. 187, being 327 feet north and east of the southwest corner of Lot 28. E. J. Cunningham and others' No. 12 G. W. and L. P. Jennings-C, 200 feet north and 950 feet west of the southeast corner of their lease "C," out of the A. S. Lipscomb Survey No. 94. H. Samuels' No. 1 J. Matlock and C. Minear, 150 feet south and 1,912 feet west of the northeast corner of the J. Matlock and C. Minear 269-acre tract out of the E. Votaw Survey No. 224.

Cooke County

Kewanee Oil & Gas Co.'s No. 7 R. J. Timmis-A, 200 feet south and 100 feet east of the northwest corner of their 80-acre lease "A," out of the E.T.R.R. Survey No. 5, A-363. Same company's No. 2 R. J. Timmis-B, 1,187 feet south and 150 feet west of the most northerly northeast corner of the R. J. Timmis 184-acre tract out of the E.T.R.R. Survey No. 5, A-363. Shell Petroleum Corp.'s No. 3 H. L. Dennis, 150 feet north and east of the southwest corner of their 47-acre lease out of the T. J. Hutchinson Survey A-484.

Erath County

Snebold & White's No. 1 W. T. Fulfer, 1,950 feet north and 450 feet west of the southeast corner of the W. T. Fulfer 249-acre tract, out of the Samuel Kelly Survey.

Howard County

Howard County Oil Corp.'s No. 2 Kloh and others, 330 feet south and 990 feet east of the NW cor., Section 5, Block 32, T-2-S, T.&P. Survey. The California Co.'s No. 5 Dora Roberts, Lease 2, 1,170 feet south and 150 feet west of the NE cor., Section 156, Block 29, W.&N.W.R.R. Survey. Witherspoon and others' No. 2 Kloh & Rumsey, 280 feet north and 3,315 feet east of the SW cor., Section 3, Block 32, T-2-S, T.&P. Survey.

Jones County

Cosden & Co. and Herbert Oil Co.'s No. 3 C. A. Bickley, 330 feet north and west of the SE cor. S half NW, Section 50, Block 18, T.&P. Survey. Humble Oil & Refining Co.'s No. 1 C. A. Bickley,

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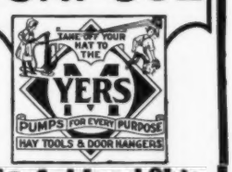

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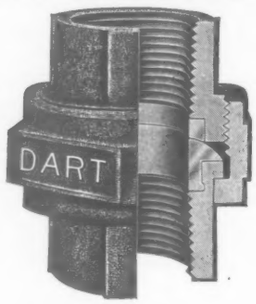

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THE OIL AND GAS JOURNAL

Tulsa, Oklahoma.

330 feet north and 200 feet east of the SW cor. N half S half SW, Section 50, Block 18, T.&P. Survey. The Texas Company's No. 6 Laura Carter, 200 feet south and west of the northeast corner of the L. Carter 173.5-acre tract out of Section 13, Block 19, T.&P. Survey. White Eagle Oil & Refining Co.'s No. 1 W. B. Teague, 933 feet north and west of the SE cor., Section 30, Austin & Williams Survey No. 339, A-4.

Jack County

Huffman & Lydecker's No. 1 A. B. Kuykendall, 300 feet south and east of the northwest corner of the A. B. Kuykendall 120-acre tract out of the Isaac Hughson Survey A-256.

Loving County

Lockhart & Co.'s No. 1 R. A. Cox and others, 660 feet south and 1,980 feet west of the NE cor. Section 20, Block 56, Township 1, T.&P. Survey.

McCulloch County

Duffy & Silk's No. 1 O. Frerich, 1,320 feet north and west of the southeast corner of the O. T. and W. H. Melvin Survey No. 12.

Montague County

Pure Oil Co.'s No. 9 J. W. Maddox-D, 650 feet north and 1,000 feet east of the southwest corner of their 91-acre lease "D," out of the John Chambliss Survey A-123.

Parker County

W. P. Chancellor's No. 1 Womack, 750 feet south and 150 feet west of the northeast corner of the north 120 acres of the south 320 acres of the William J. Darden Survey.

Pecos County

McMan Oil & Gas Co.'s No. 5 Mrs. M. A. Smith-C, 2,600 feet north and 1,740 feet east of the SW cor., Section 25, Block 194, G.C.&S.F. Survey.

Runnels County

Independent Oil & Gas Co.'s No. 1 Will Rollwitz, 330 feet south and west of the northeast corner of the south half of the M. Salinas Survey No. 20½.

San Saba County

C. L. Tyler and others' No. 1 H. M. Winkler, 200 feet south and 400 feet west of the northeast corner of the south half of the German Emigration Co. Survey No. 626.

Shackelford County

N. E. Croon's No. 1 Goodwin-Walker, 150 feet south and east of the NW cor. SE, Section 48, Block 14, T.&P. Survey. Engle Brothers' No. 1-B, J. B. Matthews-A, 150 feet north and 200 feet west of the SE cor. NE NE, Section 32, Block 10, E.T.R.R. Survey. A. J. Hughes and others' No. 1 W. P. Newell, 150 feet north and east of the SW cor. NE, Section 87, Block 10, E.T.R.R. Survey. Humble Oil & Refining Co.'s No. 4 G. R. Davis-A, 150 feet north and 2,770 feet east of the SW cor., Section 4, Block 13, T.&P. Survey. Prairie Oil & Gas Co.'s No. 1 Jim Cottle, 2,442 feet south and 330 feet east of the NW cor., Section 15, Bayland Orphan Asylum Land. Roeser & Pendleton's No. 10 W. I. Cook-A, Section 83, 830 feet south and 1,040 feet west of the NE cor. SE, Section 83, Block 10, E.T.R.R. Survey. Skelly Oil Co.'s No. 4 J. B. Matthews-S, 450 feet north and 150 feet west of the SE cor. NW NE, Section 32, Block 10, E.T.R.R. Survey. E. M. Treat Oil & Gas Co.'s No. 5 J. B. Matthews, 1,320 feet south and 150 feet west of the NE cor. E half SE, Section 33, Block 10, E.T.R.R. Survey.

Stephens County

Pace & Ward and others' No. 3 G. W. Norton, 1,052 feet south and 2,031 feet east of the NW cor., Section 1,218, T.E.&L. Survey.

Taylor County

J. B. Jameson's No. 1 Webb heirs, 1,170 feet south and west of the NE cor., Section 46, Lunatic Asylum Land.

Wichita County

Magnolia Petroleum Co.'s No. 13 J. W. Donehoo, 150 feet south and 927 feet west of the northeast corner of the north 80 acres of the south 120 acres of the J. W. Robertson Survey A-252. Barclay and Faith Oil Co.'s No. 1 Kemp & Kempner, 1,050 feet north and 280 feet east of the southwest corner of Block 40, Kemp Wichita Valley Land. Humble Oil & Refining Co. and Hines and others' No. 1 J. L. and T. J. Waggoner, 1,272 feet south and 4,229 feet east of the most westerly northwest corner of the M. A. Willis Survey A-547.

Wilbarger County

Fain-McGaha Oil Corp.'s No. 5 W. T. Waggoner-AA, 150 feet south and 790 feet east of the NW cor. NE SE, Section 18, Block 4, H.&T.C. Survey. Waggoner Refining Co.'s No. 6 W. T. Waggoner-K, 205 feet south and 792 feet west of the northeast corner of its 60-acre lease out of Section 31, Block 4, H.&T.C. Survey. Same company's No. 2 W. T. Waggoner-L, 490 feet north and 150 feet east of the SW cor. NE SE, Section 32, Block 4, H.&T.C. Survey.

Young County

L. G. Bradstreet Co.'s No. 4 L. A. Snider, 150 feet south and east of the northwest corner of the Robert Wilson Survey A-1,276. Same company's No. 5 L. A. Snider, 750 feet south and 150 feet east of the northwest corner of the Robert Wilson Survey A-1,276. O. Bratcher's No. 1 E. R. Prideaux, 150 feet south and east of the northwest corner of the north 25 acres of the south 43 acres of the west 80 acres of the E. R. Prideaux 126-acre tract out of the S. Tynes Survey A-274. Fain-McGaha Oil Corp.'s No. 5 R. Campbell-E, 50 feet south and 600 feet west of the NE cor., Section 1,371, T.E.&L. Survey. King Royalty Co.'s No. 14 G. Stewart, 2,190 feet south and 2,160 feet west of the northeast corner of the D. Dawson Survey A-76. King Royalty Co.'s No. 15 G. Stewart, 2,490 feet south and 2,160 feet west of the northeast corner of the D. Dawson Survey A-76. King Royalty Co.'s No. 16 G. Stewart, 2,540 feet south and 1,860 feet west of the northeast corner of the D. Dawson Survey A-76. King Royalty Co.'s No. 17 G. Stewart, 2,240 feet south and 1,860 feet west of the northeast corner of the D. Dawson Survey A-76. King Royalty Co.'s No. 18 G. Stewart, 1,290 feet south and 1,910 feet west of the northeast corner of the D. Dawson Survey A-76. King Royalty Co.'s No. 19 G. Stewart, 1,383 feet south and 2,260 feet west of the northeast corner of the D. Dawson Survey A-76. King Royalty Co.'s No. 20 G. Stewart, 800 feet south and 3,100 feet west of the northeast corner of the D. Dawson Survey A-76. King Royalty Co.'s No. 21 G. Stewart, 1,100 feet south and 3,250 feet west of the northeast corner of the D. Dawson Survey A-76. King Royalty Co.'s No. 22 G. Stewart, 800 feet south and 3,400 feet west of the northeast corner of the D. Dawson Survey A-76. King Royalty Co.'s No. 23 G. Stewart, 1,100 feet south and 3,550 feet west of the northeast corner of the D. Dawson Survey A-76. May-Camp Drilling Co.'s No. 2 H. O. Prideaux, 450 feet north and 150 feet west of the southeast corner of the H. O. Prideaux 345-acre tract out of the A. Rohus Survey A-240. Panhandle Refining Co. and others' No. 14 H. O. Prideaux-C, 450 feet north and 150 feet east of the southwest corner of its 105-acre lease out of the A. Rohus Survey A-240. Pennell and others' No. 1 R. J. Calvin, 150 feet south and west of the northeast corner of the east 50 acres of the R. J. Calvin 200-acre tract out of the A. Rohus Survey A-240. Perkins & Cullum's No. 3 L. F. Gragg, 175 feet north and 750 feet east of the southwest corner of their 43.75-acre lease out of the A. Rohus Survey A-240. Same company's No. 4 L. F. Gragg, 450 feet north and 300 feet east of the southwest corner of its 43.75-acre lease out of the A. Rohus Survey A-240. Same company's No. 7 G. Stewart, 750 feet south and 150 feet east of the northwest corner of its 43.75-acre lease out of the D. Dawson Survey A-76. Same company's No. 8 G. Stewart, 750 feet south and 450 feet east of the northwest corner of its 43.75-acre lease out of the D. Dawson Survey A-76. Same company's No. 9 G. Stewart, 450 feet south and east of the northwest corner of its 43.75-acre lease out of the D. Dawson Survey A-76. Same company's No. 10 G. Stewart, 900 feet south and 450 feet east of the northwest corner of its 43.75-acre lease out of the D. Dawson Survey A-76. Same company's No. 11 G. Stewart, 1,200 feet south and 450 feet east of the northwest corner of its 43.75-acre lease out of the D. Dawson Survey A-76. Same company's

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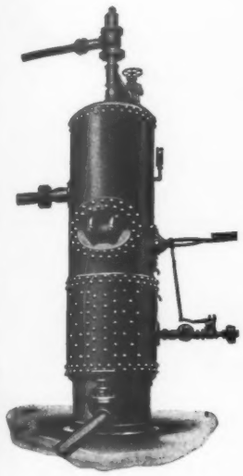

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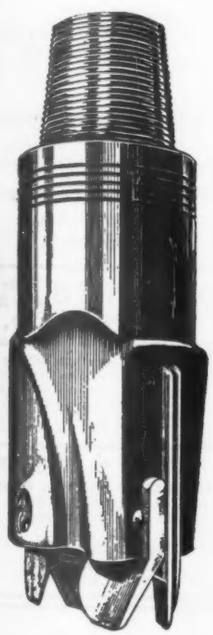

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No. 12 G. Stewart, 1,500 feet south and 450 feet east of the northwest corner of its 43.75-acre lease out of the D. Dawson Survey A-76. Same company's No. 13 G. Stewart, 1,800 feet south and 450 feet east of the northwest corner of its 43.75-acre lease out of the D. Dawson Survey A-76. Same company's No. 14 G. Stewart, 1,650 feet south and 150 feet east of the northwest corner of its 43.75-acre lease out of the D. Dawson Survey A-76. Same company's No. 15 G. Stewart, 1,350 feet south and 150 feet east of the northwest corner of its 43.75-acre lease out of the D. Dawson Survey A-76. Same company's No. 16 G. Stewart, 1,050 feet south and 150 feet east of the northwest corner of its 43.75-acre lease out of the D. Dawson Survey A-76. Same company's No. 17 G. Stewart, 1,650 feet south and 150 feet west of the northeast corner of its 43.75-acre lease out of the D. Dawson Survey A-76. M. L. Richards and others' No. 3 R. Campbell-A, 150 feet north and 650 feet east of the SW cor., Section 1,389, T. E.&L. Survey. The Texas Company's No. 1 G. Stewart-B, 225 feet south and 450 feet west of the northeast corner of the south 110.1 acres of the west 220.2 acres of Section 1, B.B.B.&C. Survey A-53.

Corrections

In Archer County: Stump & Co.'s No. 1 American Refining Co. Properties and Young, 150 feet north and 1,151 feet west of the SE cor., Section 135, Club Ranch Subdivision.

In Coleman County: Broderick & Calvert's No. 1 Leon Weaver, 3,317 feet south and 2,370 feet west of the northeast corner of Andrew Gabel Survey No. 271, being 212 feet north and 150 feet east of the southwest corner of Lot 8. Douglas Oil Co.'s No. 1 A. Weaver, 2,450 feet south and west of the northeast corner of J. R. Foley Survey No. 489, being 150 feet north and east of southwest corner of Lot 6. Douglas Drilling Co.'s No. 1 E. Strozier, 3,453 feet south and 5,010 feet west of the northeast corner of Andrew Gabel Survey No. 271, being 150 feet north and east of the southwest corner of Lot 10. Herbert Oil Co. and others' No. 1 L. Weaver, 3,453 feet south and 2,670 feet west of the northeast corner of Andrew Gabel Survey No. 271, being 150 feet north and west of the southeast corner of Lot 9. Herbert Oil Co. and others' No. 2 L. Weaver, 3,753 feet south and 2,670 feet west of the northeast corner of Andrew Gabel Survey No. 271, being 150 feet south and west of the northeast corner of Lot 16. Shell Petroleum Corp.'s No. 1 L. Weaver, 3,686 feet south and 2,370 feet west of the northeast corner of Andrew Gabel Survey No. 271, being 157 feet south and 150 feet east of the northwest corner of Lot 17.

In Jones County: Sedgwick Oil & Gas Co. and others' No. 1 T. J. Routh, 330 feet north and 1,320 feet east of the southwest corner of the T. J. Routh 299-acre tract out of the Austin & Williams Survey No. 355, A-7.

In Reagan County: R. V. Oberholtzer's No. 1 J. A. Talley, 1,650 feet north and 330 feet east of the SW cor., Section 6, G.C.&S.F. Survey.

In Shackelford County: Cranfill & Reynolds' No. 1 Flippin-F, 2,175 feet north and 150 feet west of the SE cor. Section 34, Block 11, T.&P. Survey.

In Young County: Barkley & Meadows' No. 10 Graham Stewart, 1,133 feet south and 2,160 feet west of the NE cor. of David Dawson Survey, A-76. Barkley & Meadows' No. 13 G. Stewart, 1,233 feet south and 2,622 feet west of the NE cor. of D. Dawson Survey, A-76.

MANY SUBSTANCES FROM PARAFFIN HYDROCARBONS

(Continued from Page 156)

tial to the oxidation of these hydrocarbons?

4. The retardation by catalysis of some or all of the reactions occurring in a given oxidation process.

5. Simultaneous dehydrogenation, condensation, and oxidation by employment of zinc chloride, carbon, metals, or metallic oxides and catalysts. Also use of metals such as copper, cobalt, nickel,

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SURVEYS
ESTIMATES OF OIL RESERVES

AN EXPERIENCED OIL FIELD ORGANIZATION

iron, platinum, and palladium in finely divided condition together with oxides such as the lower oxides of manganese, tin uranium, molybdenum and vanadium, in anhydrous form, which Sabatier and his associates found effective in the dehydrogenation of alcohols.

6. Determination of the function of hydrogen chloride in promoting the oxidation of methane in the presence of the borates of tin.

7. Investigation of the results of producing oxidation by passing a hydrocarbon mixed with air or oxygen through a bath of molten metal.

8. Endeavor to catalyse a specific reaction without accelerating others going on simultaneously.

D.—Chemical Oxidation

1. Extension of the work which has been done on the chemical oxidation of methane to its higher homologues, and the testing of other oxidizing agents, such as chromyl chloride and the oxides of chlorine.

2. Determination of the effect of catalyst promoters and demoters.

3. Obtaining data on the effects of temperature, pressure and time on chemical oxidation, in the gas phase using oxides of nitrogen or other gaseous oxidants.

4. Use of air or oxygen with higher concentrations of nitrogen, hydrogen, or carbon dioxide at high pressures.

5. Oxidation under controlled temperatures, low or high, with or without electrical discharge.

6. Oxidation of the gaseous paraffin hydrocarbons while in liquid state.

7. Experimental work on the oxidation of these hydrocarbons under the influence of radiant energy, especially infra-red and ultra-violet, and perhaps X-ray radiation.

8. Determination of the influence of alpha radiation on the oxidation of isobutane and 2,2-dimethyl propane.

E.—Bacterial Oxidation

1. The isolation and classification of the effective organisms.

2. Study of the influence of oxygen and other gases on the methane consuming bacteria.

3. Investigation of the oxidizing action of bacteria on ethane, propane, the butanes, and 2,2-dimethyl propane.

F.—Problems of Possible Commercial Value

1. Evaluation of the many patents for the preparation of formaldehyde and of the process for oxidation of methane in the presence of ammonia to form hexamethylene tetramine.

2. Preparation of alcohols by properly controlled catalytic oxidation of the gaseous paraffins or perhaps of olefins resulting from the thermal decomposition of the paraffins.

3. Investigation of the action on the gaseous paraffins of ozone formed at low temperatures by the action of the silent electric discharge on mixtures of these hydrocarbons with oxygen or on such mixtures diluted with nitrogen or with some other inert gas.

4. Oxidation in the gase phase in the presence of oxides of carbon, nitrogen, sulphur and halogens.

5. Use of vanadium pentoxide, vanadic acid, molybdic acid, and a number of other substances not yet thoroughly investigated as oxidation catalysts.

OIL-ELECTRIC ENGINE

NEW YORK, Mar. 9.—The New York Central Railroad will place in service on its Putnam division this week the first oil-electric locomotive in the United States designed for strictly passenger service. The same railroad last year placed in service the first through freight oil-electric locomotive, and previous to that time utilized the first oil-electric switching engine in its freight yards in New York City.

The new passenger locomotive is 59 feet long, weighs 350,000 pounds, and has a maximum tractive power of 45,000 pounds. It is powered by a McIntosh & Seymour engine, 12 cylinders set V-type, each 14 inches in diameter, with a stroke of 18 inches. The main electrical equipment, supplied by General Electric Co., consists of two generators and four traction motors.

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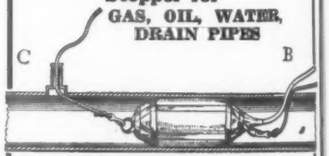

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for January

Runs

Company—	Month (bbls.)	Dly av. (bbls.)
Prairie P. L. Co.*	4,743,000	153,000
Gulf P. L. Co.	1,297,206	41,845
Texas P. L. Co.	1,117,612	36,052
Magnolia P. L. Co.	2,214,105	71,423
Empire P. L. Co.	1,574,458	50,789
Cosden P. L. Co.	930,392	30,013
Sinclair P. L. Co.	3,527,490	113,790
Oklahoma P. L. Co.	3,489,691	112,570
Other lines*	6,386,000	206,000
Total January	25,279,954	815,482
Total December	25,415,487	819,853
Difference	135,533	4,371

Shipments

Prairie P. L. Co.†	5,914,555	190,792
Gulf P. L. Co.	1,659,830	53,543
Texas P. L. Co.	1,119,561	36,115
Magnolia Pet. Co.	2,139,066	69,002
Empire P. L. Co.	1,385,602	44,697
Cosden P. L. Co.	867,996	28,000
Sinclair P. L. Co.†	3,232,513	104,275
Oklahoma P. L. Co.	3,479,773	112,251
Other lines*	6,448,000	208,000
Total January	26,246,896	846,675
Total December	26,406,200	851,814
Difference	159,304	5,139

Stocks

Prairie O. & G. Co.*	35,044,000
Gulf P. L. and Gypsy Oil Cos.	9,504,353
The Texas Company	8,189,858
Magnolia Pet. Co.	9,548,097
Empire P. L. Co.	4,295,709
Mid-Continent Pet. Corp.	3,687,321
Sinclair Crude Oil Pur. Co.*	20,709,000
Carter Oil Co.	12,428,302
Oklahoma P. L. Co.	3,176,409
Other lines*	11,700,000
Total January	118,283,049
Total December	116,940,815
Difference	1,342,234

*Estimated. †Prairie Pipe Line and Sinclair Pipe Line shipments include Texas crude oil.

Note—Stocks do not include approximately 7,700,000 bbls. of crude oil held in storage on private tank farms and leases.

EASTERN PIPE LINE REPORT

Runs from Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio Kentucky and Indiana for December and January:

	Dec., 1928	Jan., 1929
Nat. Transit	145,961.90	136,672.42
S. W. Pa. P. L.	90,632.07	99,615.87
Eureka P. L.	334,400.38	352,729.30
Buckeye P. L. (Macksb'g)	321,746.10	330,659.13
Buckeye P. L. (Cleve)	11,670.01	11,137.67
Buckeye P. L. (Lima etc.)	102,544.02	90,382.06
Indiana P. L.	5,869.25	4,133.22
Cum'land P. L.	198,838.68	195,655.99
N. Y. Transit	26,551.67	26,987.20
Tidewater P. L.	222,437.71	201,809.34
Pure Oil	58,931.42	63,975.76
Emery P. L.	62,842.83	64,263.32
Paragon Dev.	21,324.31	17,882.64
Stoll Oil Ref.	9,023.98	8,337.71
Total	1,612,774.33	1,604,241.63
Daily average	52,024.98	51,749.73

Note—Indian Refining Co. also reported other receipts of 341,102.36 bbls. Paragon Refining Co. had other receipts of 188,650.77 bbls. Paragon Development had other receipts of 373.72 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, and Kentucky for December and January:

	Dec., 1928	Jan., 1929
Nat. Transit	565,441.11	572,124.61
S. W. Pa. P. L.	472,797.78	438,318.41
Eureka P. L.	218,228.06	223,981.34
Buckeye P. L. (Macksb'g)	163,339.57	193,196.90
Buckeye P. L. (Cleve)	2,189.40	2,667.94
Buckeye P. L. (Lima, etc.)	1,389,409.84	1,292,954.24
Indiana P. L.	1,426,008.91	1,426,599.14
Cum'land P. L.	215,190.79	175,926.75
Southern P. L.	39,859.78	.....
N. Y. Transit	189,477.21	188,973.27
Northern P. L.	173,728.49	131,681.47
Tidewater P. L.	184,601.11	164,335.93
Pure Oil	62,743.21	60,320.01
Emery P. L.	60,747.88	58,403.16
Paragon Ref.	195,558.59	188,650.77
Paragon Dev.	21,911.78	19,225.73
Total	5,381,733.51	5,137,359.67
Daily average	173,572.05	165,721.28

Indian Refining Co. reported other deliveries of 315,028.81 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana, and Kentucky at the close of December and January:

	Dec., 1928	Jan., 1929
Nat. Transit	863,001.46	812,449.58
S. W. Pa. P. L.	429,283.61	405,706.51
Eureka P. L.	1,166,151.69	1,186,389.53
Buckeye P. L. (Macksb'g)	558,828.02	539,030.90
Buckeye P. L. (Cleve)	33,233.02	58,406.82
Buckeye P. L. (Lima, etc.)	2,326,759.46	2,223,198.38
Indiana P. L.	503,036.50	520,629.71
Cum'land P. L.	504,540.79	527,107.30
Southern P. L.	380,167.89	531,254.68
N. Y. Transit	307,858.74	265,636.20
Northern P. L.	367,722.48	389,493.68
Pure Oil	11,641.89	16,499.34
Emery P. L.	13,422.06	19,132.04
Paragon Ref.	21,092.45	21,287.75
Indian Ref.	46,060.23	74,153.69
Paragon Dev.	6,764.88	6,187.72
Total	7,539,555.17	7,596,563.63
Decrease	826,998.21	.....
Increase	.....	57,008.46

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of December and January showing the gross stocks of the above fields:

	Dec., 1928	Jan., 1929
Pennsylvania	2,927,805.85	2,988,208.30
Lima	734,379.46	696,840.58
Kentucky	722,153.76	755,304.30
Mid-Continent	3,118,706.55	3,070,290.16
Illinois	36,469.55	85,920.29
Total	7,539,555.17	7,596,563.63

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1926	1927	1928	1929
Jan.	55,630	56,209	52,904	51,749
Feb.	60,394	61,298	57,002	.....
Mar.	61,644	63,247	57,485	.....
April	63,019	60,927	56,812	.....
May	60,580	60,284	62,067	.....
June	61,121	62,757	58,230	.....
July	63,206	58,674	57,144	.....
Aug.	61,315	60,870	57,745	.....
Sept.	64,639	60,285	53,487	.....
Oct.	161,132	147,080	58,100	.....
Nov.	67,774	57,275	53,565	.....
Dec.	58,755	53,980	52,025	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1926	1927	1928	1929
Jan.	156,056	141,227	146,465	165,721
Feb.	159,488	138,534	147,368	.....
Mar.	150,239	133,777	158,883	.....
April	152,374	140,227	172,935	.....
May	160,998	144,594	180,559	.....
June	160,257	149,772	188,024	.....
July	160,045	151,850	189,470	.....
Aug.	151,929	188,653	192,853	.....
Sept.	158,915	144,213	194,133	.....
Oct.	161,132	147,036	176,000	.....
Nov.	172,608	150,975	176,898	.....
Dec.	136,428	144,504	173,572	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields including oil received from other lines at the close of each month for the past three years:

	1927	1928	1929
Jan.	9,718,008	12,276,710	7,596,564
Feb.	10,119,162	12,180,419	.....
Mar.	10,794,044	12,239,725	.....
April	11,112,295	11,740,125	.....
May	11,359,381	11,602,468	.....
June	11,493,673	11,287,678	.....
July	11,458,128	10,819,331	.....
Aug.	11,989,115	10,236,743	.....
Sept.	12,212,716	9,660,910	.....
Oct.	12,047,661	9,229,709	.....
Nov.	11,939,740	8,366,553	.....
Dec.	12,340,297	7,539,555	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1928—	Runs	Shipments	Stocks
Feb.	2,460.14	3,109.34	21,170.79
March	2,578.86	3,540.33	20,209.32
June	3,153.08	2,779.02	17,932.58
July	2,902.50	3,628.02	17,197.06
Aug.	2,874.11	2,350.13	17,721.04
Sept.	2,820.31	5,255.42	15,386.93
Oct.	1,289.93	538.89	17,551.93
Nov.	2,663.53	788.47	19,426.99
Dec.	3,053.60	3,167.53	19,426.99
1929—			
Jan.	2,099.90	.....	19,313.84

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Feb. 1	2,261,171.36
Runs from wells	545,715.43
Other receipts	302,945.10
Regular deliveries	481,317.64
Other deliveries	443,038.31

The amount of Illinois oil run by the Tidewater Pipe Co. in January was 35,011.96 bbls. Deliveries were 63,767.02 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1928—	Runs	Deliveries
February	573,619.78	450,217.31
March	725,250.82	520,595.49
April	526,013.13	448,283.44
May	632,968.64	522,980.51
June	608,552.49	626,087.33
July	612,286.49	565,678.37
August	639,074.85	671,864.02
September	570,307.91	737,293.59
October	626,147.64	626,290.49
November	576,332.88	702,589.93
December	584,633.00	491,517.39
1929—		
January	570,727.38	646,084.66

Tidewater Pipe Co., Ltd., also delivered in January, 194,517.25 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans	Port Arthur	Baton Rouge	Sabine Pass	Tampa	Total	Total all ports
August	18,161	3,613	27,774	17,677	2,419	69,645	.....	.....	.....	.....	.....	.....	806	70,451
September	11,100	.....	18,967	33,200	6,700	74,967	.....	.....	.....	.....	.....	.....	.....	74,967
October	17,323	.....	11,807	6,483	.....	.....	.....	.....	.....	.....	.....	.....	.....	35,613
November	21,333	5,200	25,400	18,200	7,100	77,233	.....	.....	.....	.....	.....	.....	1,000	78,233
December	4,968	2,968	24,678	18,806	3,064	54,484	.....	.....	.....	.....	.....	.....	2,419	56,903
January	16,838	.....	16,676	11,838	7,938	52,290	.....	.....	.....	.....	.....	.....	5,161	57,451

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans	Port Arthur	Baton Rouge	Sabine Pass	Tampa	Total	Total all ports
August	25,290	16,323	123,326	21,613	7,194	193,645	.....	38,677	.....	.....	613	.....	39,290	232,935
September	22,933	19,100	110,467	30,700	14,333	197,533	6,367	41,300	.....	6,333	1,667	.....	55,667	253,200
October	20,161	16,339	128,452	27,710	7,098	200,255	.....	32,226	.....	3,065	1,613	.....	36,903	237,161
November	18,400	16,033	133,700	30,267	8,433	206,833	1,333	37,167	.....	4,633	.....	.....	43,133	249,966
December	15,419	15,968	140,871	42,323	8,709	223,290	2,903	35,129	.....	2,355	.....	.....	40,387	263,677
January	11,936	8,903	130,065	34,871	15,709	201,484	.....	34,808	.....	4,098	1,287	.....	40,193	241,677

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS (Revised)

(In barrels of 42 gallons)

1928—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
February:	Month	18,038,459	19,294,426	19,678,396	3,079,887	2,571,575	1,734,207	2,230,887	3,166,000	69,793,837
	Daily average	622,016	665,324	678,565	106,203	88,675	59,800	76,927	109,172	2,406,684
March:	Month	19,118,324	20,162,524	21,542,865	3,379,031	2,687,948	1,866,106	2,401,911	3,522,000	74,680,709
	Daily average	616,720	650,404	694,931	109,001	86,708	60,197	77,481	113,613	2,409,055
April:	Month	18,280,729	19,096,920	21,876,913	3,412,260	2,472,600	1,912,187	2,370,810	3,231,000	72,653,419
	Daily average	609,357	636,564	729,230	113,742	82,420	63,740	79,027	107,700	2,421,786
May:	Month	19,321,866	19,443,355	21,220,046	3,367,809	2,843,847	1,936,026	2,525,048	3,619,000	74,476,992
	Daily average	623,609	627,205	684,518	108,639	91,737	62,130	81,447	116,742	2,296,033
June:	Month	19,164,244	18,482,981	19,877,936	3,202,050	3,075,911	2,074,422	2,425,470	3,401,000	71,704,014
	Daily average	638,808	616,099	662,598	106,735	102,530	69,147	80,849	113,367	2,390,134
July:	Month	19,754,458	18,809,188	22,055,737	3,171,548	2,792,139	2,238,090	2,492,586	3,487,000	74,800,746
	Daily average	637,241	606,748	711,475	102,308	90,069	72,131	80,406	112,484	2,412,927
August:	Month	19,444,899	20,840,804	22,339,131	3,147,058	2,711,787	1,989,264	2,561,840	3,556,000	76,590,783
	Daily average	627,255	672,284	720,443	101,518	87,477	64,170	82,640	114,709	2,470,670
September:	Month	18,908,169	22,456,860	21,554,269	3,047,350	2,540,070	1,830,225	2,432,430	3,229,000	76,998,373
	Daily average	630,272	748,562	718,207	101,575	84,669	61,007	81,047	104,300	2,583,279
October:	Month	19,430,992	23,431,071	22,176,853	3,058,460	2,652,484	1,836,221	2,571,822	3,612,000	78,769,903
	Daily average	626,806	755,841	715,376	98,660	85,564	59,233	82,962	116,516	2,540,964
November:	Month	19,907,526	22,078,680	20,791,798	2,977,800	2,476,080	1,801,914	2,388,870	3,348,000	75,770,668
	Daily average	663,584	735,956	693,059	99,260	82,536	60,064	79,629	111,600	2,525,689
December:	Month	21,574,703	22,425,722	22,180,102	2,988,400	2,521,571	1,846,841	2,289,040	3,581,000	79,407,379
	Daily average	695,958	723,410	715,487	96,400	81,341	59,576	73,840	115,516	2,561,528
1929—										
January:	Month	23,385,939	22,417,030	23,412,192	2,861,641	2,453,526	1,807,887	2,076,070	3,379,000	81,793,285
	Daily average	754,385	723,130	755,232	92,311	79,146	58,318	66,970	109,000	2,638,492
	Total 12 months	236,340,308	248,939,561	258,706,238	37,693,194	31,799,538	22,863,390	28,766,779	41,131,000	906,240,008
	Daily average	645,739	680,163	706,848	102,987	86,884	62,468	78,598	112,380	2,476,068

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